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INSIDE DOPE

by GEORGE F. TAUBENECK

Grand Old Man
Change of Pace
Cold Gray Dawn
Minneapolis & St. Paul
Store Teeth
Wrong Number
No Fool, He
From a Different Angle
Force vs. Kindness

Grand Old Man

Ailing Lieut. Gen. William Knudsen celebrated his 68th birthday quietly in his Grosse Ile, Mich. home recently. He has become an American legend.

As a mere boy he arrived in this country from his native Denmark. He brought little with him except native shrewdness and a willingness to do more than he was asked. Beginning as a repairer of bicycles, he rose to the presidency of the world's largest corporation, General Motors.

And then, during World War II, he resigned this biggest of all jobs to answer his nation's call-to-arms. Probably no one man contributed more to the winning of that war than did the self-sacrificing Bill Knudsen.

"The Great Dane" was, and is, a "character." Stories told about him are legion, and some day should be collected. Here's a representative anecdote:

When Knudsen left Ford to head Chevrolet, he sat through a long-winded sales convention. Big idea of this convention was to inspire the Chevrolet sales organization into the effort needed to catch up to Ford sales. After everyone else at the speaker's table had rolled out the purple passages, Knudsen was called upon. All he said was:

"I vant vun for vun."

That slogan spread like wildfire throughout the Chevrolet field organization. And the Chevvy boys *did* sell one Chevrolet for every Ford sold that year—and more.

Directness and simplicity. That sums up Bill Knudsen.

Change of Pace

During the last few weeks this column has been oppressively serious. So, this week, we turn light-hearted again. The rest of this stint will be devoted to smiles and chuckles.

For a starter, we'd like to quote from the witty Harry Wade of the *Detroit News*. Noting a newspaper headline which read: BRIDEGROOM LOSES $500 IN DICE GAME ON WAY TO WEDDING, Wade commented: "Well, you can't take it with you."

Cold Gray Dawn

At 3:00 a.m. the learned minister was rudely awakened by the rasping ring of the telephone. Dragging himself wearily out of his warm bed, he gingerly propelled his bare feet along the cold floor to the jangling instrument of the devil.

"Hello," he muttered into the mouthpiece.

"Who ish thish?" asked an unsteady voice at the other end.

"This is Dr. Thomas P. Reed," he explained. "May I help you?"

"Yesh," affirmed the wavering voice. Then there was a long pause. "Shay, whatsh the difference between Fundamentalism and Modernism?"

"I'm sorry, but that's a subject that cannot be explained over the phone," impatiently answered the minister. "Besides, you're in no condition to comprehend. Suppose you call on me tomorrow, and I'll be glad to explain."

"Oh, no shir!" came the vehement voice. "Thish absholutely can't wait

(Concluded on Page 6, Column 3)

Inventories Up, But:

Frozen Food Packers See End of 'Squeeze' When Cabinet & Freezer Shortages Ease

SAN FRANCISCO—Production of frozen food will be pared this year, but producers are confident that the industry will continue to grow. The present snags are strictly temporary, they believe.

This seems to be the consensus of the producers who attended their first national convention here, and these thoughts are echoed by packers and producers in Chicago, who are out to make that city the center of the industry.

Lack of adequate facilities for handling the merchandise between the packer and the retailer, and the lack of home freezers are cited by E. D. Skinner, Chicago food distributor, as the industry's chief difficulties.

Packers at the San Francisco meeting found considerable solace in rising output of frozen food cabinets for retailers, estimating that there are only about 80,000 now in use with production still running well behind demand.

A Los Angeles manufacturer, Weber Showcase & Fixture Co., revealed that it has a two-year backlog on its deluxe cabinets.

With an estimated 45,000 retail food stores now handling some 500 different frozen food items, the industry believes there will be 75,000 outlets when retail equipment is available, which may be by the end of the year, they predict.

Some 700 million pounds of the 1946 frozen food pack were still in storage on March 1—this out of the estimated total pack of 860 million pounds last year.

Production this year will be 10% to 25% or more below the 1946 level, the packers estimate, and although the estimates vary, all producers are agreed the 1947 output will be down.

"Common sense and the backers have apprised them of this fact," declared E. E. Huddleson, who headed the National Association of Frozen Food Packers.

(Concluded on Page 4, Column 4)

Refrig. Corp. Lops 22% Off Cabinet

SAN FRANCISCO—A list price reduction of 22% for its multi-purpose frozen food cabinet was announced by the Refrigeration Corp. of America during the Frozen Food Exposition here.

Harvey Farber, RCA vice president, disclosed that the former price of $965 had been cut to $795, F.O.B. Perth Amboy, N. J. He also announced that dealer discounts on the farm and home freezer models had been increased from a straight 40% to 40% plus 10%.

(Following his return from the San Francisco show, John M. Bess, executive vice president of the Homa Electric Corp. Appliance Divisions, announced a reduction of more than 20% in the price of the Frigid-Freeze 20-cu. ft. deluxe model G-1046 commercial frozen food cabinet, manufactured by Refrigeration Corp. of America. The new price of the cabinet is $599, the previous price being $760.)

"It's about time prices started coming down," Mr. Faber stated. "This list price reduction and the increases in discounts are only a beginning. The price on our 1947 model cabinet, which will be in pro-

(Concluded on Page 10, Column 1)

$12 Million In Appliances Sold In Va. Utility Area

RICHMOND, Va. — More than $12,000,000 in electrical appliances were sold during 1946 in the area served by Virginia Electric & Power Co., the utility has announced.

That area, covering southeastern Virginia and a few counties across the border in North Carolina, includes 300,000 domestic electric customers, the company declared.

Of the 40,075 major appliances sold by dealers during that record year, 17,465 were electric refrigerators. Other major appliances, trailing far behind refrigerators in volume, included:

Electric ranges, 6,283; non-automatic washers, 6,199; automatic washers, 4,752; electric storage water heaters, 3,827; electric ironers, 752; home freezers, 436; electric dishwashers, 264; garbage disposal units, 94; and electric clothes dryers, 3.

The dealers also sold 69,083 radios.

These figures were gathered from reports by approximately 50 major electrical appliance distributors, the company said.

Appliance sales for 1946 broke down to $40 per customer and $12,000 per dealer, according to the utility.

First Western Show Runs April 25-27

LONG BEACH, Calif.—First annual Western Refrigeration Industry Exposition is scheduled to be held in the Municipal Auditorium April 25 through 27, at this Pacific coast resort city.

At the same time a block away in the Hilton hotel here the California Association of Refrigeration Service Engineers Society will hold its first annual convention.

"Promotion of Products Through Education" is the announced theme of the exposition, according to W. W. Allison of Los Angeles, national R.S.E.S. president, who says that arrangements have been made for 90 booths, each 10 ft. by 10 ft. in size, at the auditorium.

All exhibitors' booths will have a standard back-drop with the name of the exhibitor displayed on top.

Program for the R.S.E.S. educational sessions has not yet been announced, but according to J. Pat Riley, president of the Long Beach chapter, arrangements are being made for a number of entertainment features during the three-day show and meeting.

A tour of Hollywood motion picture studios, a boat trip to Catalina Island, a trip to San Juan Capistrano, tours of Knott's berry farm, and arrangements for a national radio show broadcast have been planned, with a dinner-dance set for Saturday, April 26.

Heavy attendance can be expected at these meetings, according to those planning the event, who cite the fact that nearly a thousand persons are now members of the R.S.E.S. in California.

Frigidaire To Introduce 'Revolutionary' Line Of Commercial Units

DAYTON — New commercial refrigeration equipment—which the company calls "completely revolutionary"—will be introduced by Frigidaire Division of General Motors during a series of nine regional meetings for wholesale representatives throughout the nation in April or early in May, according to an announcement by W. F. Switzer, the company's commercial sales manager.

"Something completely new in the way of commercial refrigeration equipment will be presented to the Frigidaire organization," Mr. Switzer

(Concluded on Page 28, Column 3)

'Sneak' Union Bill On Licensing Fails In Massachusetts

SPRINGFIELD, Mass.—A union-supported bill requiring licenses for operators of even comparatively small refrigerating equipment has apparently been buried in a committee of the Massachusetts legislature as the result of activity by a local chapter of the Refrigeration Service Engineers Society.

The International Union of Operating Engineers had petitioned for such a law, which was introduced as House Bill No. 898. It would require that any system containing more than 50 lbs. of refrigerant must be operated by a licensed engineer or a person with a state certificate of qualification.

In addition, a licensed operator would be needed if any system "containing less than 20 lbs. of refrigerant" is operated or maintained in a public building or exhibition hall for exhibition or demonstration purposes.

Systems containing 200 lbs. or less and being fully automatic would require only one operator, the proposed bill stated.

Eligibility would be limited to those person's holding an "engineer's license," or those who had operated a refrigeration plant for one year.

Harold C. Lambert, secretary of the R.S.E.S. Western Massachusetts Chapter No. 1 in Springfield, Mass., said the chapter members recently heard about the proposed bill and

(Concluded on Page 25, Column 3)

Marketing Talks To Spark REMA Meeting

CHICAGO—The Spring Conference for members of the Refrigeration Equipment Manufacturers Association will open at the Edgewater Beach hotel here on Wednesday, April 9, and continue through Thursday and Friday.

Big day of the conference will be Thursday when two membership meetings, a cocktail hour, and the annual banquet and entertainment are scheduled.

Opening day, Wednesday, will be devoted to meetings of the board of directors, the water cooler product section, and the REMA credit group.

Closing day, Friday, will feature product section meetings and a joint product sections luncheon. According to the program, F. W. Reynolds of the National Bureau of Standards will be available for advice and counsel at product section meetings.

The program for Thursday follows:

10 a.m. REMA Membership meeting—
Ballroom.
Meeting called to order—H. F. Spoehrer, president of REMA, Sporlan Valve Co.
Annual Report of the President—H. F. Spoehrer.
Treasurer's Report—Guy J. Henry, Henry Valve Co.

(Concluded on Page 28, Column 1)

Women Plant Workers Get On-the-Job Laundry

AMSTERDAM, N. Y.—To combat absenteeism among women workers, the Mohawk Carpet Co. is said to be opening an automatic laundry service at its plants here this month.

Under this plan, the women workers will bring their laundry to work with them in the morning and turn it over to attendants. These attendants, using 30 coin operated automatic washing machines, will have the laundry ready for them at the end of the day. The charge is 25 cents per machine load.

Operated in cooperation with Telecoin Corp., the project is believed to be the first of its type in this country.

Hotpoint Shows Postwar Ranges To Distributors

Smaller Calrod Unit With Greater Heat, Flexibility Featured In 4 New Models

CHICAGO — Introduction of the new 1947 "completely postwar" models of Hotpoint electric ranges was staged at distributor meetings in San Francisco, Seattle, Los Angeles, and Salt Lake City late last month, Gregory L. Rees, manager of Hotpoint's range division, has announced.

Presentations in other parts of the country will be held when carload deliveries can be made, he indicated. Production is now in full swing here, he said.

A deluxe model, two standard size models, and an apartment house size model, were introduced.

They feature an improved, smaller diameter Calrod unit which, through more turns of the Calrod, results in increased heat and flexibility and more contact with cooking vessels, Mr. Rees claimed.

On the surface burners, Calrod units are hinged so that the reflector pan may be removed for cleaning, he asserted. The Calrod unit under the deepwell cooker can be raised for surface operation if desired.

In the oven, the Calrod unit is placed outside the oven liner, thus increasing the oven capacity by 25% and improving the air circulation, according to Mr. Rees.

Surface unit switches on the deluxe model are all grouped on the front panel, while the oven switches and automatic controls are placed on the backsplasher over the work space.

Among the controls are an elec-

(Concluded on Page 28, Column 2)

Philco Refrigeration Output Passes 1941

PHILADELPHIA — The Philco Corp. "produced more refrigerators in 1946 than in 1941, even though total output of the industry was considerably smaller," Philco's 55th annual report to stockholders revealed last week.

"Sales of air conditioning units last year were also considerably greater than in 1941," the report continued. Production of Philco freezers, although curtailed by material shortages, was among the largest in history," it added.

The annual report was issued by John Ballantyne, president, and Larry E. Gubb, chairman of the board of directors, on April 1.

In discussing refrigerator production, it stated, "The first refrigerator to be completely manufactured in the large new refrigerator and freezer

(Concluded on Page 28, Column 4)

Bendix Ships First Load Of Clothes Dryers to N.Y.

SOUTH BEND, Ind.—The initial carload of Bendix automatic clothes dryers was shipped from Detroit this week to Bruno-New York, Inc., distributor in the metropolitan area. Other distributors will receive their initial shipments very soon, declared officials of Bendix Home Appliances, Inc.

Suggested retail prices are $199.50 for the electrically heated models, and $219.50 for the gas-heated dryers.

The dryers, designed as a companion product for the Bendix automatic washer and automatic ironer, are manufactured by the Buhl Mfg. Co.

FTC Launches Investigation of Current Shifts In Steel Distribution System

NEW YORK CITY—Steel company competition with non-integrated fabricators and changes in mill practices of the steel industry which diverge materially from the prewar pattern of supply are being investigated by the Federal Trade Commission, a letter from the commission to 1,000 metal stamping manufacturers has revealed.

The letter, which asked for information on steel trade practices, was written by William H. England, director of the division of accounts, statistics, and economic investigations in the FTC.

Tom J. Smith, Jr., executive vice president of the Pressed Metal Institute, in his reply to the letter, gave the following information:

"The Institute feels that as the distribution of steel in the past has been largely from the mill direct to manufacturers or for small buyers through established steel warehouses that this system of distribution has, through the years, proved sound.

"However, your investigations no doubt have acquainted you with the fact that some of the larger producers of steel usurp the prerogatives of this warehouse distribution and have established their own warehouses and thus thriftily garner not only the original producer's profit but the steel distributor's profit as well.

"With the best intentions in the world in a tight market it is but natural to assume that these subsidiary warehouses and end-product producing organizations are hardly likely to be penalized unduly to afford scarce tonnage to competing independent warehouses and producers of end products."

Any movement to bring stabilization and lower prices to the greatly disturbed steel market would find a sympathetic reception in the stamping industry, Mr. Smith told the FTC.

Bidding Closes April 7 On Items In New York Sale

NEW YORK CITY—A sealed bid sale on surplus refrigeration equipment is now being conducted by the local office of the War Assets Administration. Bidding closes April 7.

Offered for sale are 61 new air flow diffusing type anemostats, a beer cooler system, cooling tubes, cold plates, four new steam driven compressors, two Frick condensing unit compressors, a G-E dehydrator, doors, evaporating systems, brass gates, 72 suction type heat exchangers, two industrial chilling machines, etc.

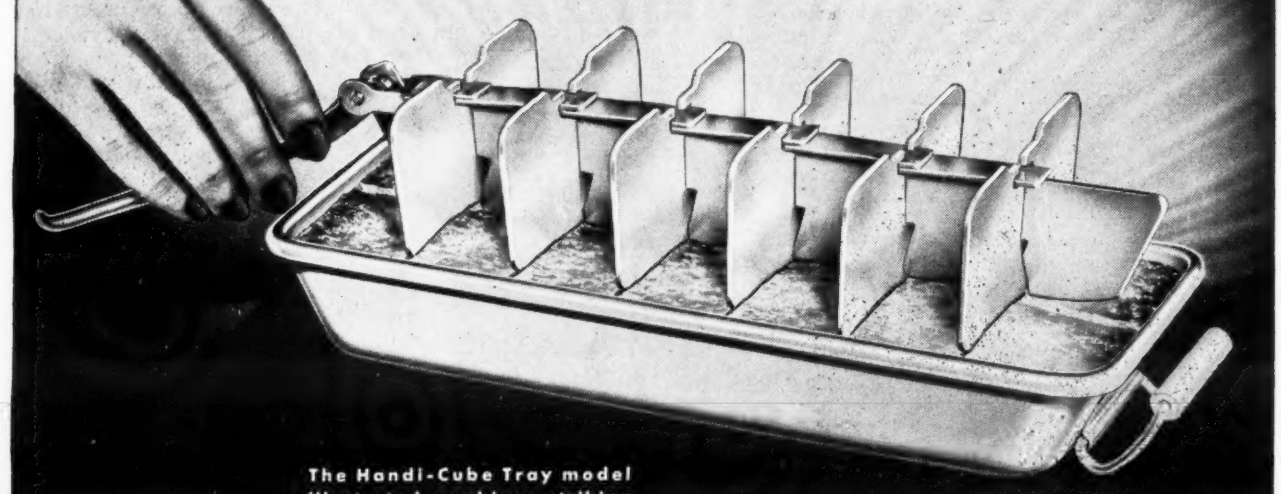
Vacuum Sales Hit New High

CHICAGO—February factory sales of household vacuum cleaners set a new high, totaling 272,927 standard sized models, compared to a total of 265,364 units in December, the previous high month. February's volume was 126% greater than the same month in 1945, according to C. G. Frantz, secretary-treasurer of the Vacuum Cleaner Mfr.'s Assn.

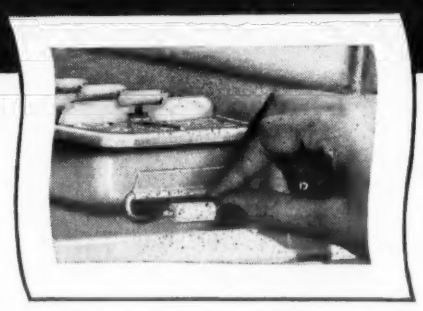
Part of G-E's New Line

(Top left) The new General Electric 6-cu. ft. "apartment house" refrigerator. (Top right) G-E's 8-cu. ft. deluxe model which occupies floor space of a six. (Right) The G-E 8-cu. ft. home freezer which holds some 280 lbs. of food.

Command Performance by the Post-War INLAND HANDI-CUBE TRAY



The Handi-Cube Tray model illustrated combines striking beauty with sensational performance. Pan lifter is optional.



You command ice cube performance unrivalled when you give a hand to the new Inland Handi-Cube Tray —with aluminum grids.

A touch of the plastic lifter instantly loosens the pan from the freezing compartment.

A finger-tip lift of the releasing lever, and the newly designed actuating mechanism releases any quantity of ice cubes instantly . . . full-sized and dry. What's more, this mechanism is rugged and robust for permanent ice releasing service.

From the first glance to final performance, this striking and graceful Inland Handi-Cube Tray compels the kind of attention that makes sales flow your way . . . faster.

For complete details and prices write to—
INLAND MANUFACTURING DIVISION, *General Motors Corporation, Dayton, Ohio*

FAST FREEZING
QUICK RELEASING
ICE TRAYS BY INLAND MANUFACTURING
INLAND

New Orders, Shipments Lag During January; Inventories Show Rise

WASHINGTON, D. C.—The low increase percentage of new orders which lagged behind manufacturers' shipments for January brought about a $385,000,000 upswing in the value of inventories.

Reported by the Department of Commerce, the increase in manufacturers' inventories was about equally divided between durables and nondurables. Total rise for the month brought the grand inventory total to a whopping $20,700,000,000—a new record.

There is a school of thought, however, that contends this gigantic accumulation of inventories is merely in line with the current high volume of sales. Don't forget, they caution, that stocks in many lines (particularly durables) are below prewar normal.

Manufacturers' deliveries for the month, the Commerce Department said, totaled $13,200,000,000, surpassing the December figure by some $375,000,000. But since January had one more working day than December, the daily average rate for deliveries was about the same for both months.

Continuing the upward trend that began in August, 1945, the index of new orders placed with manufacturers advanced 2% during January, according to the Commerce report. New orders, like shipments, experienced the sharpest rise among the heavy industries.

Renco To Distribute Weber Line In 4 Michigan Counties

DETROIT — Raymond E. Nelsen, owner of Renco Refrigeration & Equipment Co. here has announced his appointment as distributor in a four county area for Weber Showcase & Fixture Co. of Los Angeles.

Mr. Nelson said he holds the Weber commercial, Lo-Temp, and soda fountain franchises for Wayne, Oakland, Washtenaw, and Macomb counties.

Used, Unused Equipment Offered In Fixed Price WAA Sale In Detroit

DETROIT—A fixed price sale of both unused and used refrigeration and air conditioning items is currently being conducted by the War Assets Administration here. The sale closes on April 21.

All priority and commercial buyers are eligible to participate. Minimum purchase has been set at $100.

Unused equipment being offered includes three Kelvinator freezing units designed for heat treating aluminum rivets, one lot of spare parts for Copeland refrigerators (entire lot must be purchased), and 83 Minneapolis-Honeywell pressuretrols (minimum purchase 12).

Used equipment includes: one York brine cooler with ammonia float valve, one Dimco portable freezer test cabinet, three Revco sub-zero cabinets, two industrial fluid coolers, an air conditioner cabinet made by Buffalo Forge Co., a Westinghouse self-contained Unitaire and accessories, a Frigidaire evaporative type condensing unit, a liquid oxygen cooler manufactured by Linde Air Products Co.

A 1 to 10 volt cooling unit, a Deepfreeze chilling unit, a Frigidaire closet type commercial refrigerator, a special Frigidaire temperature holding cabinet, a self-contained air conditioning unit, and a Frostrode refrigeration unit.

Johnston Heads Westinghouse Sales In Northwest District

CHICAGO—Appointment of Grattan H. Johnston of the Westinghouse Electric Appliance Division advertising staff, as sales promotion manager of the company's northwestern district with headquarters in Chicago, has been announced by S. M. Davison, district manager. He succeeds J. W. Coffey, who was recently named laundry specialist for the Northwestern District.

Mr. Johnston joined the Westinghouse advertising department in 1945.

LARGE DISTRIBUTOR of Domestic Refrigerators

Requires Sales Manager not over forty years of age with college training. Address reply to Box 2303, Air Conditioning & Refrigeration News.

Credit Expert Tells Equipment Dealers:

Moral Character, Business Know-How, Liquid Assets Rank High with Firms Advancing Credit

By George M. Hanning

DETROIT — Moral character, experience in business, and financial status are three elements of good credit that a finance company looks for in a dealer, William H. Crawford, vice president of Commercial Credit Corp. told the local Food Equipment Dealers Association here recently.

If a dealer is honest, he will make a good credit risk, Mr. Crawford indicated. Experience in business does not necessarily mean length of service in a particular business. It means rather the dealer's knowledge of good business practices, he explained.

The monetary worth of a business is considered third, Mr. Crawford asserted, noting that his company has granted credit amounting to 20 times the worth of the business involved.

In extending credit, Mr. Crawford said, the value of the dealer's inventory is heavily considered. He cited the case of a dealer who was refused credit both by a commercial bank and a finance company because his assets were frozen in a large inventory of nondescript merchandise that would not stand up for the length of the credit paper written on it.

MUST FLUCTUATE WITH BUSINESS

Mr. Crawford advised the dealers to keep their finances in a reasonable liquid condition so as to be able to change with business conditions.

He pointed out that they are now going through a "honeymoon period," and that honeymoons do not last a lifetime. Dealers' net profits are three times higher than in 1941, he asserted. Markups have pyramided an average of 55% and in some cases 75%, he said.

"Food prices," he declared, "have risen far beyond other prices and much above average increases in income."

"They are," he added, "out of line with the general price structure and will inevitably be brought into adjustment. Prices on commercial refrigeration products will be reduced during the adjustment period.

"In 1946, the commercial refrigeration industry produced three times as much volume as it did in 1941, the record year. This increase resulted from expansion of established manufacturers and new concerns in the field.

"Already pipe lines are rapidly filling up and it is only a matter of time when demand and production strike a balance. That will mark the transition from a sellers' to the buyers' market.

"Some degree of mortality will occur in all ranks—manufacturers, dealers, and merchants. Price cutting will again raise its ugly head. Purchasers will assert their demands for lower prices on new merchandise and high trade-in allowances.

WHAT'S NEEDED TO SURVIVE

"Your survival in the buyers' market depends upon your ability to change. You require intensive and intelligent sales activity. In many cases, it will have to be developed. This means sales education, sales training, and sales direction."

"Mass consumption is only possible through consumer credit," he declared, adding that consumer credit is now going to play a more important part than ever before.

Dealers will have to penetrate the time payment market fully to realize volume sales, he said. In this connection, he warned that sellers of commercial refrigeration equipment have offended the little time payment buyer because they have priced him right out of the market.

"Financing must be the very foundation of support to the production schedules that have been established in the industry. To take away or materially weaken that support will result in substantial reductions in the entire production program," he asserted.

To meet the specifications of the buyers' market, he stated, an effective and acceptable plan:

1. Should be acceptable to the purchaser and maintain the purchaser's good will,
2. Should permanently provide adequate funds with which to do the complete job,
3. Should provide an efficient credit investigation service,
4. Should render an effective collection service, and
5. Should keep the dealer's full merchandise profit intact.

"If the finance plan complies with these specifications, then I should say it will furnish the full requirements of the buyers' market," he declared.

Mr. Crawford expressed the confidence of Commercial Credit Corp. in the future of time payment sales by noting that the firm has 318 offices around the country and plans to run that total to 500.

February Durable Sales Jump 45% over Year Ago

WASHINGTON, D. C.—While retail sales for February generally rose 15% over the same month a year ago, durable goods sales jumped 45%, the U. S. Dept. of Commerce reported.

Retail sales for the month were estimated at $7,375,000,000.

The level of sales of hard goods continued upward, the Dept. of Commerce declared, with the index of sales after adjustment for seasonal factors and the difference in the number of days rising nearly 3% over the previous month.

The increase in sales of nondurable goods was much less than in durable goods, with some businesses such as eating and drinking places and apparel stores even showing slight declines. Highest in the nondurable goods class was food stores with a 21% increase over last year, according to the Commerce department.

Retail sales for February were said to be at about the same level as in January.

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One reason is that it's so simple to determine the adjustments necessary for proper performance. All that's necessary is to attach the Servel analyzer test set to the three terminals in the electrical accessories control mechanism.

The analyzer immediately spots low voltage, defective wiring, poor connections, or electrical accessory failure. It tells you, too, whether or not you have trouble inside the sealed case.

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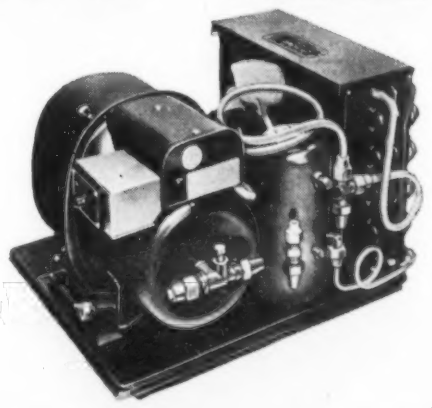
7. FARM FREEZERS
8. WATER COOLERS
9. INDUSTRIAL COOLING
10. VEHICLE REFRIGERATION



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Dealers Are Urged To 'Make a Friend of Your Customer' as Buyers' Market Nears

DAYTON, Ohio—"A war-nutured sales psychology of 'take it or leave it,' created by scarcities and shortages, is doomed to become a thing of the past," declares L. A. Clark, assistant general sales manager of Frigidaire Division, General Motors Corp.

"It's Time to Start Selling" is the theme that Frigidaire is attempting to drive home to its dealers and salesmen, and Mr. Clark also points out:

"It is my humble opinion that one of the most important things we need to do, and quickly, is to again treat our prospects and customers with the same friendly respect and helpful courtesy that we would extend to a personal friend—and that's exactly what we want them to be. And, remember, we can't get friendship without extending friendship.

Take an Hour To Say 'No'

"Many of us agreed to the wisdom of taking an hour to say 'no' during the war when there were no appliances available—and most of you did a better job of saying 'no' than did most other retail merchants. But when the roar of the guns faded away, many of us forgot all about the importance of taking an hour to say 'no.' And these almost rude and certainly unsympathetic answers were given many of your customers—'I have no idea when you can get a refrigerator'—'Our policy is first come, first served'—and dozens of other examples of how not to say 'no.'

"If it took an hour to say 'no' when there was a war on—when everyone was willing to sacrifice and do without—certainly it takes more than an hour to say 'no' when the urge of patriotism and the willingness to sacrifice and do without is no longer there," stresses Mr. Clark.

"We all know a lot of people who have taken a lot of pushing around during this sellers' market. And I think that many of these folks are going to glory in their newly regained independence.

Personal Likes Important

"When people are free to buy where they please, you can depend on it they are going to buy from those salesmen and those stores they *like* to do business with—not only from the standpoint of knowing that they are getting fair treatment, quality products, and proper prices, as important as these are, but the people they *like* to do business with from purely a *personal* standpoint. We are all influenced by personal likes and dislikes in business dealings, and our customers are no different," he points out.

"Now—another important element in our attitude towards the prospect is to remember that 'To sell John Smith what John Smith buys we must see John Smith through John Smith's eyes.'

"To the prospect, our products usually represent an important and major purchase—a purchase she may have been planning and saving for, for a long, long time. She has a right to expect that we will consider the transaction just as important as she does. We must remember, while we may sell dozens of our products a month, and, therefore, each sale may be routine—the prospect may only buy one in a lifetime and the purchase is correspondingly important, says Mr. Clark.

"We must also remember that, in our prospect's eyes, products are much more than highly attractive appliances of steel, copper, and porcelain that are economical to operate, free from service and will last a long time. The prospect is not buying a refrigerator—what she is really buying is the fulfillment of a desire for healthful food protection, savings in food bills, ice cubes floating in cool, refreshing drinks, and vegetables that are garden-fresh.

"She is not buying just an electric range. That proud wife sees it as a means of providing more delicious and nourishing meals for her family. She sees hours of freedom from the kitchen, and the compliments of friends who visit her kitchen.

Must Understand People

"To fully succeed as salesmen, we must study and understand why people want and buy the things we have to sell. And with that understanding—the sales story on vital product features will take on new meaning in the customer's eyes. Our sales presentations will be more interesting and effective, because the prospect will realize that we appreciate just how important this purchase is to her. So, in our future selling, let's always learn to see John Smith through John Smith's eyes."

Frozen Food Packers Add the Hollywood Touch

E. J. White, chairman of the convention committee for the recent frozen food meeting in San Francisco, crowns Shirley Kimball as "Miss Frozen Foods of 1947," while retiring President Huddleson looks on.

* * *

Frozen Food Packers--

(Concluded from Page 1, Column 3)

The possible effects of this inventory, however, are minimized by Chicago distributors who deny that there is any growing consumer resistance to high prices and well known brands of frozen foods. "Off" brands aren't moving so well, they did say, however.

Shortage of sugar is an important factor, especially with frozen fruit, which accounts for 400 million pounds of the 700 million in storage, the packers say. The recent increase in sugar allotments to remanufacturers should move a lot of this frozen fruit out of the warehouses, they believe.

Unless a good part of the present pack moves out of storage before the 1947 pack comes in, "the industry will be confronted with many problems, including interference with the normal supply of credit," warned Frank E. Jerome, vice president of the Seattle First National Bank, at the San Francisco meeting.

"Processors should put up a real margin of their own money and not be dependent too much on the liberal credit terms they have been getting from supply houses, farmers, and bankers," he advised.

Consumer education is another important problem which the industry plans to tackle, for they're trying to move in on the fresh food market in addition to the canners.

Frozen foods now take about 1½ cents of the average family's food dollar, as compared with 89 cents for fresh foods, 6½ for canned goods, and 3 cents for dried foods. Half of the fresh foods are admittedly not suitable for freezing, but the industry is beginning to eye that other half.

The housewife too often compares frozen food to canned food as to price and quality, say the packers who point out that what they are trying to do is give the housewife frozen fruits and vegetables which are as good or better than the best fresh foods available to her.

Packers cite tests recently conducted at a government laboratory in Albany, Calif., where two housewives bought the best quality fruits and vegetables available from grocers and took them to the laboratory to prepare for cooking.

From 20% to 80% of the fresh foods weren't suitable, while all the frozen foods qualified, it is said. Besides, say the packers, the frozen varieties were as cheap or cheaper than the fresh foods.

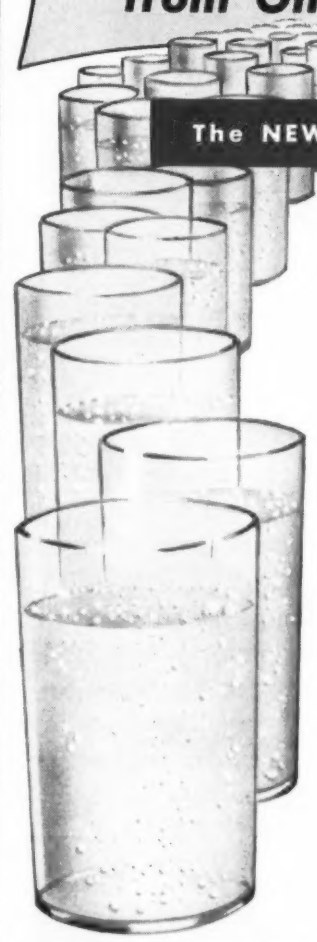
Gemco meets the customers in TIME...

The sensationally new GEMCO "Packaged" Air Conditioner made its bow to the industry and trade at the Air-Conditioning Exposition in Cleveland last Fall. GEMCO was the talk of the show.

For some time GEMCOs have been rolling off the assembly line... and GEMCO has had its first meeting with the scores of thousands of potential air-conditioning customers who read TIME magazine. The full-page, 2-color advertisement reproduced here was the kick-off of the campaign that will make GEMCO as outstanding in the public mind as it is in the industry's mind.

Gemco
AIR-CONDITIONING
GENERAL ENGINEERING AND MANUFACTURING CO.
4417 OLEATHA
ST. LOUIS 16, MO.

5620 GLASSES OF HIGHLY CARBONATED WATER from One 20-lb. tank of CO^2.



The NEW TEMPRITE Cooler-Carbonator

The new Temprite Carbonator *actually delivers over 5620 glasses of sparkling, highly carbonated water from one 20-lb. tank of CO^2 gas!*

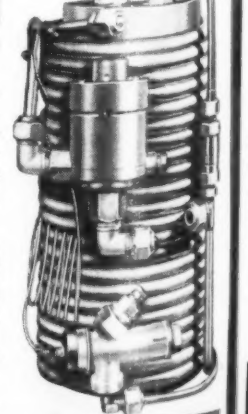
The Temprite user gets maximum carbonation at the lowest possible CO^2 gas pressure . . . *without waste of CO^2 gas,* independent of city water pressure.

All stainless steel construction, complete with valves, checks and fittings assembled to the carbonator. Motor, pump and relay included.

Ready for immediate installation in soda fountains, taverns or beverage dispensing units, this compact Temprite unit requires *only ½ square foot of base space and fifteen inches in height.*

The same highly efficient carbonator can be furnished without the water cooling feature where water cooling equipment is already installed. *This carbonator is ideal for replacement of worn out or defective carbonators now in service.*

1. Instantly cools plain water.
2. Instantly carbonates water at low temperatures.
3. Dispenses cooled plain or carbonated water.



TEMPRITE PRODUCTS CORP.
Originators of Instantaneous 80° 40° Liquid Cooling Devices
43 PIQUETTE AVENUE DETROIT 2, MICHIGAN

7 Factors Indicate Halt on Rising Prices For Durable Goods

NEW YORK CITY—Seven factors pointing to a check on rising prices for durable goods through increased competition in sales were listed by durable goods manufacturers, surveyed recently, to show that prices in their lines were generally stable.

These factors are:

1. Indications that the peak in metal prices has been reached.
2. Filling up of distributor inventories and cancellation of duplicate orders by distributors.
3. Economies in production made possible by improved machinery and methods.
4. More buying resistance to high prices.
5. Improved supply of metals from mills.
6. Softening of prices in "black markets."
7. Increased competition in business.

The manufacturers cited these points following President Truman's recent suggestion that prices be reduced following the lead of the Ford Motor Co. and International Harvester Co.

They were reported to be in entire agreement with the President's suggestion but felt that materials and commodity speculators were chiefly responsible for high prices rather than manufacturers and distributors.

They pointed out that price increases for major durable goods have averaged only 15 to 20% with a maximum of 30% in a few lines since the end of price controls.

Some manufacturers said that they have discontinued obviously over priced items and others declared that they have redesigned their output to meet lower price levels.

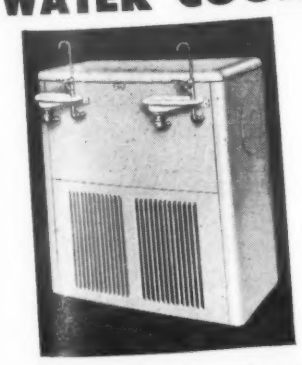
Some noted that their problems were complicated by the need for better quality merchandise and the poor quality of raw materials they have been getting.

Omaha Area Bakeries Continue Trend to Refrigerated Units

OMAHA, Neb.—The trend to refrigerated display and storage equipment in the smaller bakeries in the Omaha trade territory is continuing this year, it was reported by Henry Hansen, sales manager of the Omaha Bakers Supply Co.

Establishments recently making such installations include the Thompson Bakery, Onawa, Iowa; Edgement Bakery, Edgement, S. D.; Midwest Bakery, Omaha; Markus Bakery, Akron, Iowa, and the Sno-White Bakery, Sioux City.

CABINET
DRINKING
WATER COOLERS



Glass filler or bubbler coolers are available with capacities up to 25 gallons per hour. Cabinet of heavy steel welded construction with white baked enamel surface. Also available now — normal and high suction pressure water coolers for commercial use.

Write for latest data.

DAY & NIGHT
REFRIGERATION DIVISION
DAY & NIGHT MFG. CO.
One of the Dresser Industries
MONROVIA, CALIFORNIA
SOLD THROUGH REFRIGERATION WHOLESALERS AND DEALERS

G-E Conditioning Dept. Sets Up Product Section For Parts, Components

BLOOMFIELD, N. J. — Establishment of a Products Section to handle parts and components of the Air Conditioning Department products, has been announced by G. R. Prout, vice president and general manager of the General Electric department.

W. S. Mersman will manage the Products Section at Ft. Wayne, Ind., and will handle procurement, warehousing, marketing, and shipping of renewal parts.

The Bloomfield, N. J., Products Section, will be divided into two branches. J. H. Wood is in charge of sales, cataloging, pricing, and customer service.

G. A. Richardson will supervise procurement, stock control, warehousing, and shipping; and will be responsible for "repair and return" material and equipment for the Bloomfield Section.

Nebraska State Trade School Teaches Vets Refrigeration, Air Conditioning Business

LINCOLN, Neb. — The Nebraska State Trade School at Milford has requested a budget of $133,221, not including buildings, for the 1947-49 biennium, and State Superintendent Wayne Reed reported that the school now has 203 pupils taking courses in refrigeration, air conditioning, plumbing, electronics, and other similar trades.

Veterans number 191, and there is a waiting list of 331 veterans seeking training. One building has been given over to refrigeration equipment.

The training is largely being given with an eye to eventual ownership of their own businesses by students, Superintendent Reed said. In addition to the actual mechanical training, the curriculum includes buying, keeping inventories, taxes, labor relations, and other problems encountered in operating a business.

Brewer-Titchener Buys 2 Cabinet-Making Plants

BINGHAMTON, N. Y. — Acquisition by the Brewer-Titchener Corp. of the plants and equipment of the American Chain & Ladder Co., Inc. at New Milford and Great Bend, Pa., has been announced by F. A. Ellis, manager of the Crandal-Stone division of Brewer-Titchener.

Both of these plants will be used for the manufacture of BTC food freezer cabinets, he said. Operations at the New Milford plant were scheduled to start April 1, he added.

These plants will free space formerly used for that purpose at the company's refrigeration division here for the increased production of evaporator plates, liners, and bunkers to meet the growing demand.

The New Milford plant, 22 miles south of here, has 16,000 sq. ft. of plant space laid out and fully equipped for the production of food freezer cabinets. There are eight acres of adjacent land for future expansion, Mr. Ellis said.

The Great Bend property, 16 miles south of here, includes a completely-equipped wood working plant and dry kiln which will supply all divisions of the Brewer-Titchener Corp. with crating, skids, and pallets, in addition to manufacturing other wood products, he declared.

Avco Sales for 1st Quarter Nearly 50% of 1946 Total

NEW YORK CITY—Aviation Corp. has reported a consolidated net income of $1,855,111 for the quarter ending Feb. 28, 1947. Consolidated net sales for the same period were $25,097,914, or almost half of the total sales for the 1946 fiscal year, the company declared.

The net income is equal to 26 cents each on 6,613,424 common shares, it added.

Results in this quarter cannot be compared with the same quarter last year because operations of Crosley Corp., New Idea, Inc., and American Central Mfg. Corp., now divisions of Avco, were not included in the 1946 reports.

RETURN EMPTIES NOW

Take Time Today to do Yourself This Favor

TAKE a few minutes—now—to look around your grounds. Spot *every* "Freon" cylinder on the place. Line up those empties for immediate return.

You'll be doing yourself a favor . . . benefiting your own interests by helping to insure prompt delivery of "Freon" when you want it. You'll help eliminate the serious shortage of cylinders . . . a shortage that now actually threatens shipments of "Freon"!

Urge every one of your customers to do the same. Urge them to return cylinders the same day they become empty. It's important . . . the need is an urgent one. Cylinders are needed NOW to continue filling orders. RETURN EVERY CYLINDER THE DAY IT'S EMPTY. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

Ship empty "Freon" Cylinders via freight collect to:

Kinetic Chemicals, Inc.
Carney's Point, New Jersey

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FREON
REG. U. S. PAT. OFF.
safe refrigerants
"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS

THE NEW 1/2 HORSE DOVER
EQUIPPED CONDENSING UNIT, COMPLETE WITH MOTOR, IMMEDIATE DELIVERY.
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Ideal for air-conditioning, freezers, show cases, etc.
•
WILSON FREEZERS, INC:
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LOOK FOR THESE---WHEN BUYING REFRIGERATION & AIR CONDITIONING SUPPLIES
★ One Stop Supply Service ★ Complete Stocks ★ Fast Delivery
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PLUS 18 years experience serving the Refrigeration and Air Conditioning Industry exclusively.
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STYLED FOR PERFORMANCE
Larkin refrigeration products, made by the originators of Cross Fin Coils, combine industrial beauty with flawless performance. Humi-Temp Forced Convection Units—Bare Tube and Zinc Fused Steel Plate Coils—Evaporative Condensers—Air Conditioning Units—Instantaneous Water Coolers—and other top-ranking factors in industrial and commercial refrigeration.

LARKIN COILS 519 MEMORIAL DRIVE • S•E• ATLANTA • GEORGIA

HORSEPOWER--
harnessed by HUSSMANN!
HUSSMANN Condensing Units are made in sizes from ¼ HP to 2 HP, in both air-cooled and water-cooled types—to deliver efficient, effective refrigeration economically, quietly, and safely.
Vibration and noise are reduced to a minimum. The compressor and fan have been designed, and belt guard added for greater durability and more modern, streamlined appearance. The load is completely safe for all motors of proper rating, regardless of manufacturer.
And, to facilitate servicing and belt adjustments, a belt tightener has been added to the larger sizes. Furthermore, many parts are interchangeable throughout the entire line, for the sake of simplifying operations.
The newly improved HUSSMANN line of Condensing Units is truly an important contribution to the Refrigeration Industry—another outgrowth of HUSSMANN Know-How.
HUSSMANN
HUSSMANN REFRIGERATION, INC.
HUSSMANN BLDG. • ST. LOUIS 6, MO.
THE NAME THAT STANDS FOR *Completeness* IN FOOD STORE REFRIGERATION EQUIPMENT

INSIDE DOPE
by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

'til tomorrow. I musht know right thish minute!"

"Well for heaven's sake," returned the exasperated minister, "why can't it wait until tomorrow?"

"Heck, Mishter," came the peevish voice. "Tomorrow I won't care a hoop!"

Minneapolis & St. Paul

The spirit of rivalry that exists between the Army and Navy is nothing compared to that which festers between the twin cities of Minneapolis and St. Paul. Let that Truth introduce the following anecdote:

A certain small-town minister was called to Minneapolis to deliver a sermon before a huge congregation in one of that city's most popular churches. He did his duty, and he did it well.

And, when he returned to his native town, all his friends and relatives were eager to hear how he had done in the Big Twin Cities.

"How did they respond?" enthusiastically asked a younger brother.

"It was terrible," was the crestfallen reply. "They didn't like me in Minneapolis."

"Why was that?"

"I made the mistake of selecting a text from St. Paul!"

Store Teeth

Having been notified that his new set of false teeth was ready to be fitted, a revered old bishop entered the dental office at the appointed time. After a few preliminary harrumphs, he relaxed in the chair while the dentist put the new dentures in his mouth.

"Well, how do they feel?" asked the dental surgeon.

"Jesus!" lustily shouted the bishop. "Christ!"

"Why, Bishop," admonished the embarrassed dentist, "if they hurt that badly, you'd better remove them so that I can work on them for you."

"Oh, the teeth don't hurt," explained the surprised bishop. "They're fine. This is the first time in twenty years that I've been able to pronounce those beautiful words without whistling."

Wrong Number

A minister and a plumber, by some odd coincidence, had the same name and resided in the same community.

The minister became so harried by constant calls at the parsonnage for the plumber's aid that he asked the telephone people to remove his name from the telephone directory.

Consequently, the plumber began to receive unexpected calls. Night and day he was heckled with requests to officiate at weddings, funerals, christenings, and the like. As a last resort, he visited the minister, and demanded that he have his name reinstated in the phone directory. But the minister would not comply. He knew when he was well off—he thought!

So, the following day the plumber received a phone call from a member of the minister's Ladies' Aid Society. This well-meaning lady insisted that he should speak at one of the meetings of her society.

"Hell, no!" was the vehement reply. "I'm too gosh-damned busy writing my sermon!"

No Fool, He

A prominent and conservative businessman had in his employ a valet who cherished pronounced Communistic tendencies. Furthermore, this man-servant never failed to attend weekly party meetings called by the Russian spy who controlled this area.

After several months had elapsed, his employer observed that no longer did his valet request evenings off to take part in the meetings of his Communist pals.

"What's happened, Alex? Are you no longer interested in party activities?" asked his puzzled employer.

"Well, sir," replied the valet, "it's a known fact that if this country's wealth were equally divided, each person would have $4,782.32."

"What has that to do with it?" inquired the businessman.

"Sir," explained the ex-Communist, "I now have $8,000!"

From a Different Angle

Refreshments were being served at a Disabled Veterans hospital party. They were mighty tempting, too.

But. . . .

A shapely dancer, who had entertained the boys, consistently turned down all offers to fill up her plate.

"Why don't you try some of the eats, honey?" asked one of the G.I. patients.

"I really shouldn't," explained the dancer. "I must watch my figure."

"Honey, you help yourself to these victuals," responded the patient. "I'll watch your figure."

Force vs. Kindness

"A dispute once arose between the Wind and the Sun, as to which was the stronger of the two, and they agreed to put the point upon this issue, that whichever soonest made a traveler take off his cloak should be judged the more powerful.

"The Wind began, and blew with all his might and main a blast, cold and fierce as a Thracian storm; but the stronger he blew the closer the traveler wrapped his cloak around him, and the tighter he grasped it with his hands.

"Then broke out the Sun. With his welcome beams he dispersed the vapor and the cold; the traveler felt the genial warmth and as the Sun shone brighter and brighter, he sat down, flushed with the heat, and cast his cloak upon the ground.

"Thus the Sun was declared the conqueror; and it has ever been deemed that kindness is better than mere force; and that the sunshine of a warm and helpful manner will sooner lay open a man's heart than all the threatenings and force of blustering authority."—*Aesop's Fables.*

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BY A QUARTER CENTURY OF REFRIGERATION KNOW-HOW
Plan your automatic refrigeration installations for a triple advantage: Proved performance, low first cost, low maintenance cost. LIPMAN machines for dependable service in any field of commercial refrigeration are the result of more than a quarter century of manufacturing know-how. Let LIPMAN serve your needs profitably!
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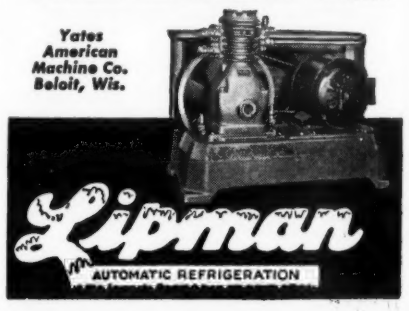
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SAVE YOUR TIME
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New England dealer writes:
"If it had not been for your fast and efficient work in filling my needs, my business would still be just one man trying to make a living.
"Instead, thanks to you, we are a company of many satisfied customers and accounts."
Air Conditioning and Refrigeration
Parts - Tools - Supplies
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Arranged and indexed for quick reference. All the appraisals shown are established by experts. Use the MANUAL to identify every refrigerator quickly and correctly.
Bookbound in durable green cloth. Pocket size (4¾" x 6¼")
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Please send me.....copies of the TRADE-IN MANUAL at $5.00 each.
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CITY.....ZONE.....STATE.....
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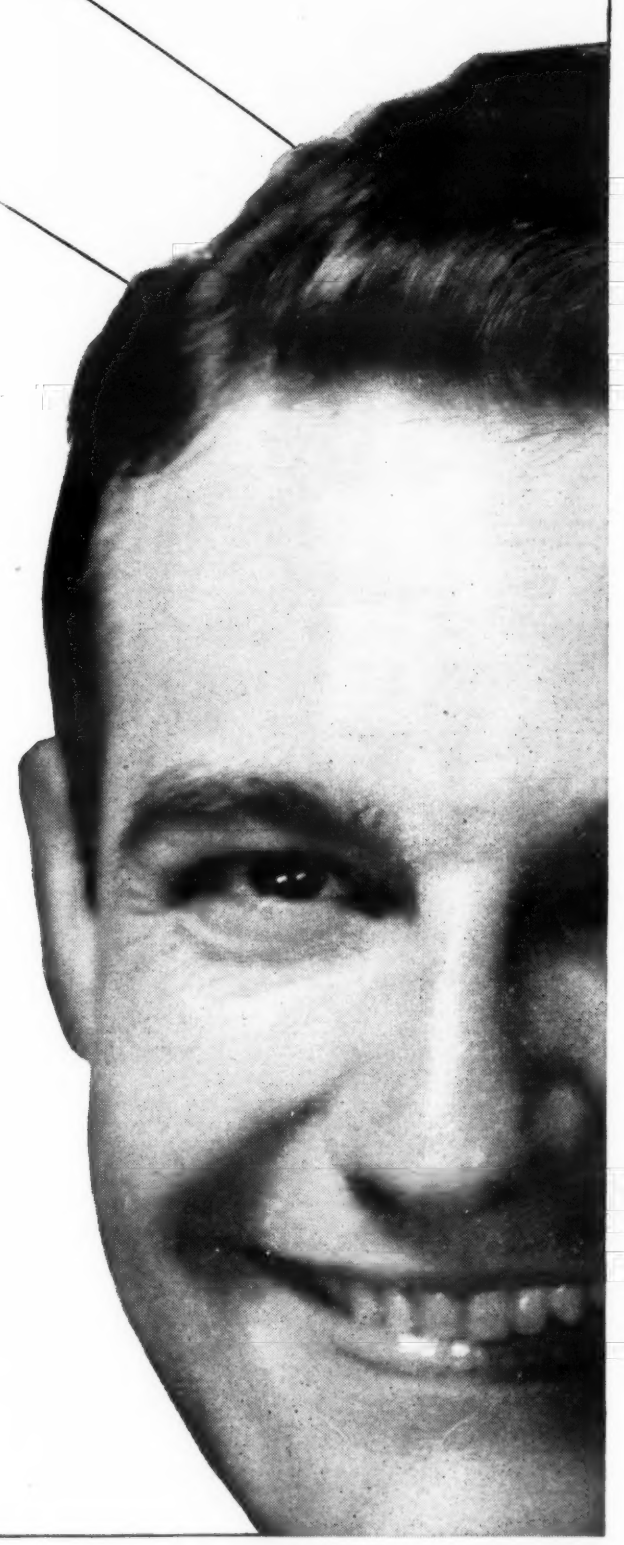
using the Chicago Tribune's
more effective
Selective Area Advertising Plan



Your advertising dollars do a better job . . . bring results faster for you and your dealers . . . when you take advantage of the Tribune's Plan.

The Chicago Tribune's Selective Area Advertising Plan gives prominent display of each dealer's name and address . . . closely identifies your product with your *local* outlets. Result: more sales in the Great Chicago Market—a market so large it can take all or the greater part of the production of many manufacturers. Under the plan—

EACH DEALER GETS

1. Selective coverage of his local market
2. Prominent display of his name and location
3. The low rate of just 2½c a line!

YOU GET

1. Better identification of your local outlets
2. Enthusiastic dealer support
3. Advertising that pays off right away!

Put the Tribune's Selective Area Advertising Plan to work for you. Thru it, you can best implement the significant market data revealed in the Tribune's Durable Goods Study among consumers and dealers.

To learn how this plan fits your specific needs, write your nearest Tribune representative as shown below.

Tribune families tell us that they will spend $263,000,000 for home appliances the first year they are available. This is 63.4% of the total indicated volume in the Great Chicago Market. No other medium covers this staggering potential so effectively. Tribune rates per line per 100,000 circulation are among the lowest in America.

Chicago Tribune

The World's Greatest Newspaper

February average net paid total circulation:
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E. P. Struhsacker, Chicago Tribune
220 E. 42nd St., New York City 17

Fitzpatrick and Chamberlin
155 Montgomery St., San Francisco 4

W. E. Bates, Chicago Tribune
Penobscot Building, Detroit 26

MEMBER: AMERICAN NEWSPAPER ADVERTISING NETWORK, INC., FIRST 3 MARKETS GROUP, AND METROPOLITAN SUNDAY NEWSPAPERS, INC.

'Experts' Outline Equipment and Other Needs of the Frozen Food Industry

Editor's Note: There were many meetings and many talks delivered at the Frozen Food Convention and Exposition in San Francisco. The editors have extracted from these talks the parts that they believe will be of greatest interest to readers.

20% of Stores Have Units, But 60% Will Need Them

—From "New Horizons For Frozen Food Merchandising," a discussion by Donald Barr of Young & Rubicam.

A survey recently listed the requirements of a cabinet that might do a better selling job on frozen foods. These are:

1. The case should preferably be wide open. Doors tend to impede buying.

2. Should have room for a wide variety of items, and be constructed so that housewives do not have to stoop too much to pick up merchandise.

3. Its design should be such as to draw immediate attention.

4. It should provide some means for creating mass display effects.

5. It should have ample storage space for surplus stocks for refilling cabinets, and not have to depend on daily deliveries.

6. Its operation should be economical.

7. It should require very little maintenance and keep a constant temperature.

8. It should provide easy, orderly arrangement of stocks.

* * *

Another step in good retail merchandising will be the availability of storage facilities ranging from the small, blind cabinet in the backroom, to large walk-in freezers. Distributors cannot afford to continue the delivery of three packages of this item, or six of another. If they are to operate economically and reduce their margins to help secure better retail pricing, it will be necessary to handle larger quantities of products and delivery less frequently.

This means practically all stores, except the very smallest, must then provide suitable storage facilities so that they will always have adequate inventories on hand as required by the customer.

* * *

In too many stores, the frozen food case or cases, is a "forgotten man." Someone should be assigned to handle the frozen foods department. Cases must be kept clean and orderly. Inventories for the different products must be well maintained.

Slovenly appearing cases, dirty and broken packages, and an "in and out" of inventory situation discourages regular frozen foods usage. Yet, this is a very easy thing to take care of and should be considered an important part of retail merchandising.

* * *

A recent survey would indicate that the easiest route would be to expand the physical distribution for frozen foods. At present, my best estimate is that about 20½% of all food stores *now* have frozen food equipment. While much of this equipment is obsolete in terms of capacity or merchandisability, these outlets are nonetheless distributing some frozen food products to some of their customers. Within the next eight to 10 years, it would be safe to guess that frozen foods could be satisfactorily distributed in between 50 to 60% of all grocery outlets. This physical expansion will be a first step in successful merchandising.

Again, I am drawing on my reporters to answer the question of what percentage of produce sales are produced by frozen food departments. These figures ranged from as little as 2% of the produce department volume to an average of 10% in certain types of stores. There are many exceptions to these figures, with *many independents* and *some chain groups* reporting sales considerably in excess of these figures.

A careful weighing of all the information available would indicate that the distribution of frozen fruits and vegetables in the stores now carrying them—and these are for the most part Class A and B stores—will average about 4% of the produce department sales. Certainly, here is a second merchandising opportunity for increasing sales by what I would term "growth from within."

* * *

There are plenty of distributors sitting in this room, and others who are not represented here, who have demonstrated conclusively that frozen foods can be distributed at an 8 to 12% mark-up. Some are doing it at an even lower figure and making money. If you, as a distributor, expect to survive, your cost of doing business must go down. It could hardly be expected that your competitor in the same town, who operates on a low cost basis, will tell you his methods, but there are plenty of people in nearby communities who would only be too glad to help you get on the right track.

* * *

These stores can use different types of store equipment. For sometime the lack of equipment has been a bottleneck preventing expanded distribution, but now there are about 100 manufacturers really producing and offering different kinds of models of store cabinets for selling frozen foods.

Refrigerator manufacturers must develop cases which will maintain temperature requirements at low operating costs, but which will provide visibility. Visibility is a selling necessity in practically all types of stores, except the very smallest.

* * *

While considering the merchandising value of the case, we cannot ignore its location in the store. It has been pretty well demonstrated that frozen fruits and vegetables can best be sold as a part of the produce department operation. Meats, fish, and poultry can best be sold in those respective departments.

Or, in the newer, retail merchandising experiments, a complete frozen foods department has been set up with adequate cases for the storage of a complete variety of all products. These complete departments either with or without service, depending on the type of store, are demonstrating that it is possible to sell more frozen foods per customer and to many more customers.

The mental attitude of the retailer towards his frozen foods department is important. Frozen foods are too often offered to customers in an apologetic way, probably because the dealer knows little about the products themselves, how to handle them or their usages. Frozen foods, like any new product that is unknown to a large number of consumers, must be offered for sale by the retailer with the same confidence that he uses in selling a well known brand of canned corn or peas.

What a Small Chain Seeks Equipment-Wise

—From "This Is Tomorrow," a talk by Emil Brisacher, president, Brisacher, Van Norden & Staff.

In order to get a firsthand impression of what the operator of a big chain of grocery stores might think about frozen foods, I went over to the East Bay and talked the matter out with Charles Crouch, president of Lucky Stores, which operates 29 enormous supermarkets. This is what he said and I quote him:

"The frozen food business got off to a big start because during the rationing period money didn't matter and frozen food was free from rationing. But there's been too much frozen food of poor quality, priced too high for my average customer."

Mr. Crouch is a great believer in the future of frozen foods and is investing a lot of his company's money in frozen food fixtures because he found by installing two open fixtures in each store that his sales increased by 400%. In his new stores he will have 63 ft. of display space in each store devoted to frozen foods besides 21 ft. for ice cream.

He believes that the 7-ft. display fixture is not long enough . . . that it should be 10 ft. to contain a sufficient supply. He points out that each of these fixtures is going to cost the average grocer about $1,350 which is a sizable investment and may slow up the universal sale of frozen foods. I asked him a point blank question as to just how many brands of frozen foods he proposes to stock in his new supermarkets when he has 63 ft. of display space available.

"I want just one brand," he stated,

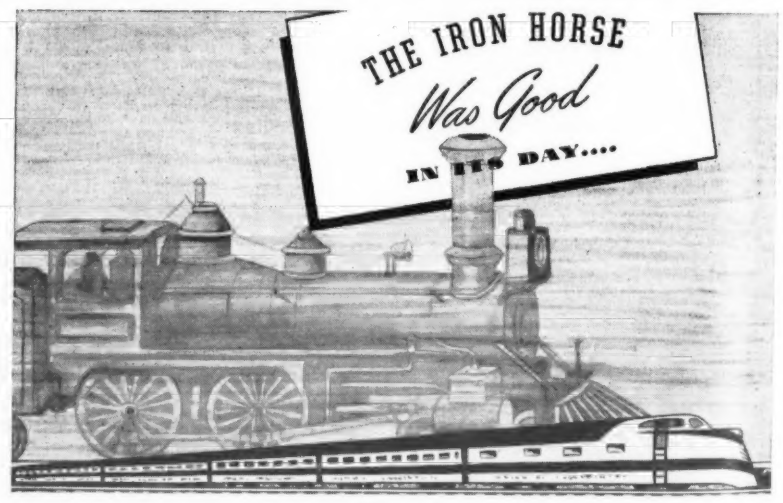
(Concluded on next page)

Coming down the home stretch

Jack & Heintz motors help themselves to a complete workout on a 75-foot conveyor. This automatic proving ground gives each motor a run-in at rated voltage, then increases the voltage 30% for another stretch . . . then gives each motor a "ground" test of 1200 volts. Result . . . Manufacturers get *proven* power with Jack & Heintz motors.

This speedy, accurate testing development is another example of Jack & Heintz *mass precision* methods which are being applied to fractional horsepower motors, magnetos, bearings and refrigeration compressors *today*, and to other revolutionary products of *tomorrow*.

JACK & HEINTZ PRECISION INDUSTRIES, INC., *Cleveland 1, Ohio*



BUT...

It would soon be left far behind in any contest of speed with the Diesel, electric and steam locomotives of the present. Not only speed, but ease, economy and simplicity of control are the hallmarks of modern rail transportation. With

CHEMICALS ACP PROCESSES

RUST PROOFING AND PAINT BONDING
Granodine
Duridine
Alodine
Lithoform
Thermoil-Granodine

RUST REMOVING AND PREVENTING
Deoxidine
Peroline

PICKLING ACID INHIBITORS
Rodine

Duridine

the ACP double-action metal cleaner and phosphatizing chemical, these same advantages are in evidence.

DURIDINE, which can be used in the conventional power spray washer of mild steel construction, simultaneously cleans steel surfaces and coats them with a thin, tight phosphate film, well integrated with the parent metal. — The uniform, crystalline structure of this phosphate bond and its non-metallic, non-conductive properties make possible a firmly bonded and lustrous paint finish; and, in cases of accidental scratching or denting, rust creepage under the paint finish is prevented.

AMERICAN CHEMICAL PAINT CO.
AMBLER ACP PENNA.

What They Said on Frozen Foods

(Concluded from Page 8, Column 5)

"and because of space limitations I am going to be restricted to just one brand . . . it's going to have to be standard, super-standard, choice or fancy."

* * *

Take a look at the largest food market in the United States, namely the New York metropolitan area. Outside of exclusive frozen food stores, a very poor distribution pattern is manifest. True enough, you will find frozen foods in 40% of the grocery stores that are catering to the high income group, but in only 5% of the medium class stores and in 5% of the chain stores are they catering to the Elmers. You will find no frozen foods whatsoever in the stores which cater to a low income trade. These are 1946 figures.

* * *

Mr. Crouch foresees the day when he will offer to his customers about three to five years from now, a choice between fresh vegetables, frozen vegetables, and canned vegetables. He believes that by that time vegetables will come in from the fields clad in cellophane wrappers with all of the excess unedible portions removed and as he states "ready for the pot."

He believes that due to the savings in freight that these cellophane wrappers, prepared vegetables will cost no more than present day vegetables. He points to the fact that in a 60,000 lb. car of lettuce, 30,000 lbs. is waste and the freight saving would pay for the elimination of this waste at the field.

I talked with Bill Hadeler, president of the California Retail Grocers' Association, to get his viewpoint and his major suggestion to the industry is that it gear itself like Kraft and Best Foods to have service trucks that will be watchful about the deterioration of the grocers' stocks on hand and like these two companies, will quickly replace them before they get to the consumer.

Of course, today this spoilage is greater than it is going to be in later years when frozen foods are not kept in ice cream cabinets and in refrigerators of all types, but in the proper fixtures.

Education Needed or Industry May Flop

—From "The Broker in Frozen Foods," a discussion by Watson Rogers, president, National Food Brokers Association.

The National Association of Frozen Food Packers has placed special emphasis on the maintenance of high quality of frozen foods. The NAFFP recognized that one of the essentials for a strong frozen food industry is the maintenance of quality at a peak that would meet the strong competition of fresh fruits and vegetables, meat and fish.

The insistence on quality is not restricted to the Association level. Food men everywhere who deal in and with frozen foods have listed quality as the chief problem in keeping the industry on a steady and sound basis.

* * *

Is there need for such aggressive education and promotion on your part? Judge for yourself. Some dealers who have ordered frozen food boxes have been hoping that they will not be delivered. Others have stated that the boxes make excellent storage space for ice cream. Some have stated that they bought these only because they did not want to lose the business of a few customers who insisted on frozen foods.

That is not a healthy situation. These people must be shown how to do a good merchandising job on frozen foods so as to yield profitable sales. They should be enthusiastic boosters of such foods.

Another place where education is needed is at the consumer level. The housewife still needs to be told how to prepare frozen foods. Yet, some packers do not even include instructions on their packages. Should the item be defrosted at room temperature or should it be placed in water? Should the water be hot or cold? How long should the item be cooked? Perhaps it should not be boiled but only brought to a simmer.

There are so many different products and each has its own preparation procedures that it is folly to expect the housewife to do a good job on each without instructions. Some packers apparently feel that they can coast along on the instructions given by the majority of you. Maybe they feel that because frozen foods have been on the market for several years there is no need for such instructions.

May I remind you that a simple product like oatmeal has been in use for many, many years yet oatmeal packages still tell the housewife how to prepare it.

Uniform Standards Key To Customer Satisfaction

—From "Technical Research In Frozen Foods," by Ernest H. Wiegand, Food Technology Department, Oregon State College.

Too many men have the wrong impression in that they believe frozen foods are produced in a relatively simple way; in reality, the process is very complex because the product—frozen food—is an unstable, perishable item.

The frozen food industry should not think of itself as a food preservation industry, but rather as an industry dealing in perishable goods. To keep the "naturalness and freshness" of these perishable goods is not a simple process but one involving scientific techniques and considerations.

The "watchdog" of the consumer may be the Food and Drug Administration whose job is protection *but* it is the industries' first responsibility to see that its consumers are protected and satisfied with frozen foods. At the present time, one of the most important ways that the industry can satisfy consumers is to set up uniform standards.

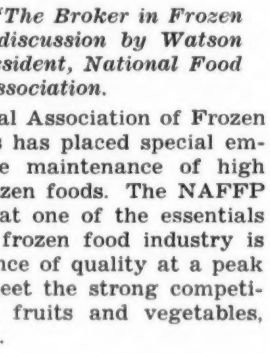
* * *

The Food and Drug Administration will see that the industry conforms to these standards, irregardless of *who* studies the problem and makes the recommendations as to what these standards might be. Nonetheless, they should be studied and developed by the group which is most informed on the ramifications, problems, applications, scope, and *limitations* of the industry concerned. This group, in our case, is the frozen food industry. This is one of the great responsibilities of the industry today!

TREMENDOUS DEMAND!

THE SENSATIONAL, NEW

FREEZRLARM



PROTECTS FROZEN FOODS

The exclusive, self-contained warning system . . . sounds an alarm whenever temperature rises above danger zone FROM ANY CAUSE. Not connected in any way with electrical system! Every freezer owner and locker plant needs one. Liberal dealer discounts, literature available.

CASH IN ON THE BIG SALES AND PROFITS

NATIONALLY ADVERTISED

WRITE FOR OUR DEALER PROPOSITION

FREEZRLARM COMPANY

832 S. LUDLOW ST., DAYTON 2, OHIO

Stainless REACH Refrigerator

25 cu.ft. Steel -IN

Stainless Steel Inside and Out

Fully Welded Steel Construction

30 sq. ft. Usable Shelf Area

Forced Convection Cooling System

Factory Balanced Refrigeration

After years of enforced restrictions, Koch is coming back into full production again. Throughout these years, Koch has been enlarging, increasing facilities, and planning. Now, here is the result: the first completely post-war refrigerator, a 25 cu. ft. model of stainless steel, fully welded, with not a stick of wood used. These soon will be shipping in carloads to Koch distributors all over the world. In keeping with Koch traditions of quality and craftsmanship, every one will be a perfect refrigerator.

KOCH Refrigerators

North Kansas City 16, Mo. Since 1883

Freezers and Cabinets Highlight Frozen Food Show In San Francisco

RCA Shows New Model--

(Concluded from Page 1)

duction in July, will also be $795 list."

A prototype of the new model was displayed at the show and although specifications were not released, it apparently contains all the features of the 1946 case plus a few more.

The three-dimensional illuminated pictures of food in full color, an exclusive with Frigid Freeze cabinets attracted considerable attention at the show. In addition, RCA showed its reach-in food freezer, a walk-in model, two ice cream cabinets, and three home and farm freezers.

E. J. White, who was arrangements chairman for the Frozen Food Industry Exposition in San Francisco, apparently finds the three-dimensional pictures above the new Frigid Freeze cabinet too tempting to resist. Refrigeration Corp. of America has announced a price cut on the model.

Schaefer Unveils 6-ft. 'Pak-A-Way' Freezer

The changeover from plastic to triple Thermopane auto sealed glass tops in the Schaefer "Clear View" frozen food cabinets was displayed for the first time. On exhibit was the 26 cu. ft., self-contained box listing for $954. Other models are available in 34, 16, and 12-cu. ft. sizes.

A 6-cu. ft. "Pak-A-Way" home freezer, listed at $249 was also unveiled at the Exposition. All "Pak-A-Ways" now feature a pull-out type, sealed noiseless static compressor with an independent, battery operated bell alarm system.

The 12 and 18-cu. ft. models have two top doors while the smaller model has one. All are self-sealing with finger-pressure locks. Separate sharp freeze compartments have been abandoned in favor of a manually controlled temperature range from -20° F. to 0° F. Adjustable wire dividers within each box and ample toe space are new features.

A new product, the "Silent Salesman" received considerable attention from dealers. Constructed to be suspended from the ceiling or from brackets, the selling is done with 40 interchangeable product and price listings which pass by three windows on either side of the display. Four interior-illuminated translucent food illustrations on each side are eye catchers. A drop front allows ready access to the endless chain mechanism to change slides. Built-in flood lights are in the bottom.

The unit is as yet unpriced, but H. L. Schaefer, president, disclosed "it will not be more than $150."

Visitors seem interested in the Beall line of big upright freezers. The company introduced a new 46-cu. ft. two-temperature model and also showed a 48-ft. model and the 168 cu. ft. walk-in.

* * *

'Thermo King' Features 500-lb. Truck Cooler

A life-size display of the new model "Thermo King" mechanical refrigerator for trucks featured the booth of U. S. Thermo Control. M. B. Green, general sales manager, stated that the improved unit weighed only 500 pounds and was designed to be mounted forward on the truck body over the roof of the cab.

A one-piece, compact unit it is powered by a two-cylinder gasoline engine and is thermostatically controlled. Forced air circulation holds the temperature for delivery of all perishable products.

Installation of the unit is a simple operation accomplished by preparing an opening in the truck body, inserting the unit and fastening with four bolts.

Another product of Thermo-Control, also unveiled for the first time, is the "Shop-A-Tot," a self-service shopping cart with a built-in seat between the handles for the baby.

46-ft. Two-Temperature Box Revealed by Beall

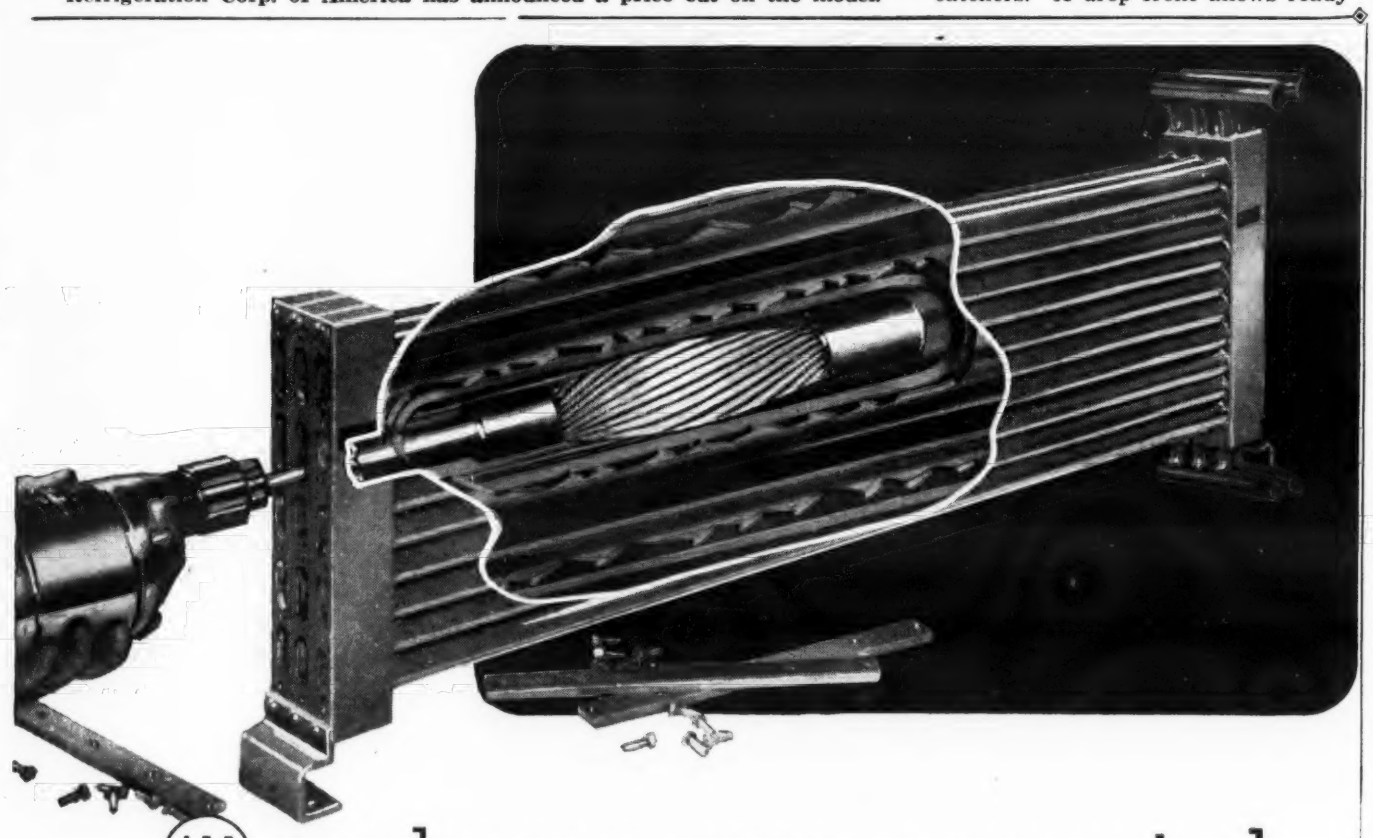
A new two-temperature freezer for the average home was exhibited for the first time by Beall as a smaller version of its 168-cu. ft. walk-in model. A 46-cu. ft. upright model, it is of aluminum construction with 6 in. of insulation throughout.

Two full length outside doors permit entry to either compartment: a 22-cu. ft. storage space held at 38° F., which is adjustable, and a 24-cu. ft. 0° F. freezing compartment. The latter has three inner doors leading to four freezer plates plus an additional storage shelf.

A new type blower coil circulates the air within the storage compartment only and operates on a defrosting cycle. Shelves in the storage compartment are adjustable. It is listed at $1,146, F.O.B. Portland.

Another upright model is a 48-cu. ft. which contains built-in sharp freeze plates at approximately -15° F. It has one full length door leading to three inner doors opening on shelves.

E. L. Ben Wilkins, sales manager for Beall, disclosed all orders are being filled within 30 days, and that the company is seeking outlets all over the country.



HM condensers more economical because they're cleanable!

Commercial users and service engineers the country over are now specifying Halstead & Mitchell condensers for replacement and conversion orders—to obtain the most economical operation with maximum efficiency.

These new HM units combine two qualities never before obtainable in tube-within-a-tube, water-cooled condensers—they're cleanable, and they achieve TRUE counterflow heat-exchange relationship between the coolant and the refrigerant, enabling water requirements to be reduced without sacrificing condenser unit capacity.

On your replacement or conversion requirements, specify HM condensers—any size from ½ to 10 H.P.

It's the CLEANABLE feature that makes HM condensers different! Recover "new-unit efficiency" through the simple use of a power-driven cleaning tool, as pictured. Water tubes are accessible at both ends for the spiral tool to clean and restore copper water surfaces to their original heat-exchange efficiencies.

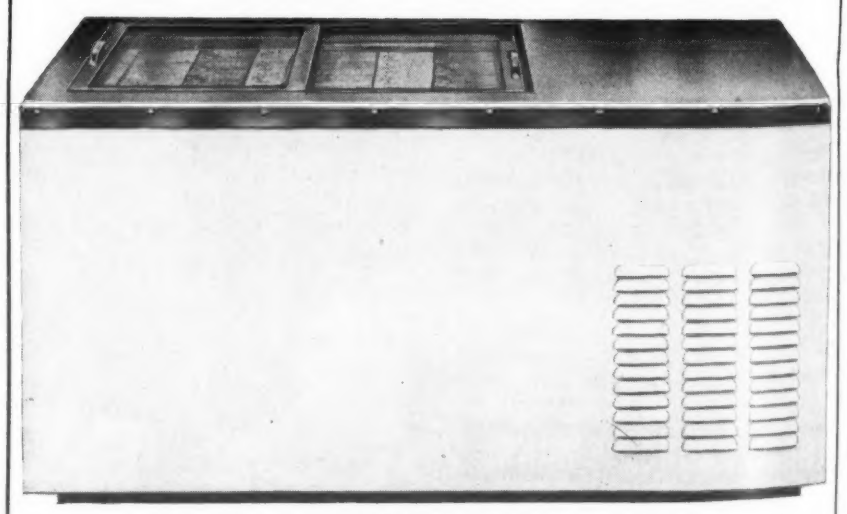
JOBBERS in all principal cities carry HM condensers in stock for immediate delivery—standard sizes of ½ to 10 H. P. Write for jobber list and descriptive literature.

HM Halstead & Mitchell

OFFICES: Bessemer Building, Pittsburgh 22, Pa.

Here it is!

The SENSATION of 1947



Model 510 A

Check these Features!

- 2 THERMOPANE SLIDING GLASS DOORS
- POLISHED STAINLESS STEEL TOP
- BUILT-IN 4 WALL REFRIGERATION
- ALL WELDED HEAVY GAUGE STEEL CONSTRUCTION
- HYDROLEENED FOR VAPOR SEAL

This 10 cubic foot all welded steel self service frozen food display cabinet is designed to meet the needs of the average store.

This self-contained, smartly styled, and superbly built cabinet eliminates the problems of:

Lack of space

Fear of overstocking

Fear of investing too much

FLEISCHMAN FREEZER CO., Inc.

275 East 140th St., Bronx 51, N. Y.

From the Frozen Food Show--

This One Comes In 2, 3, and 4-Door Models

Four horizontal plates and interior lighting are features of this upright reach-in displayed by John Mowat Refrigerators at the recent Frozen Food Exposition in San Francisco. Models are available with two, three, and four doors, and all are 73½ in. high.

High Visibility Stressed In Mowat Reach-In Line

Three models of a new high-visibility, reach-in frozen food cabinet were displayed at the Show for the first time by John Mowat Refrigerators, San Francisco. In two, three, and four door models, each of the cabinets is 75½ in. high, with four horizontal plates and interior incandescent lighting.

William Tourtillotte, sales manager, announced the price of the three door box to be $1,295 F.O.B. San Francisco with immediate delivery. The three-door model has a net capacity of 42 cu. ft. and is powered by a ½-hp., 4-cylinder compressor, installed in the bottom center of the cabinet.

Company officials announced that a national chain of distributors is now being set up.

The interior of each box is aluminum while the outside is high baked white enamel. Door frames may be had in white or contrasting black. Each door front contains four thicknesses of "Thermopane" and insulation throughout is 4 in. of Fiberglas.

Self-Feeding Marks Spir-O-Freez Open Cabinet

Arthur Spiro, vice president, reported an enthusiastic reception for the Spir-O-Freez, self-feeding, open top frozen food cabinet. He said the gravity feed principle which automatically keeps 100 packages displayed and 250 in ready reserve made a hit with Western dealers.

The full length, inclined mirror has a drain along the bottom edge to prevent moisture from running into the open compartment. More than 26 cu. ft. of refrigerated space, held between 0° and 10° F., includes three storage compartments in base which hold an additional 1,500 packages.

Mr. Spiro disclosed that he would spend some time in the Pacific area lining up a dealer organization.

* * *

Packages Are Kept 'on Tap' and on Top

The gravity-controlled feeding device in this open Spir-O-Freez unit is said to require no filling during the day. In addition there is space below for storage, permitting the case to hold some 1,500 packages of frozen food under refrigeration, it is claimed.

IT'S A

Increase your sales with this great line of

TRADE MARK
MIRACOOL REFRIGERATOR

All Steel WALK-IN COOLERS aluminum clad or painted

Storage and Service door models

Write for folder

The CLEVELAND REFRIGERATOR CO.
6600 SIDAWAY AVE. CLEVELAND 4, OHIO

300% Sales Jump Cited For New Weber Cabinet

A new open top frozen food cabinet, which stepped up sales 300% in a field test, was displayed for the first time at the Exposition. Manufactured by the Weber Showcase & Fixture Co., Inc. of Los Angeles and called the Frozel Lo-Temp self service refrigerated case for frozen foods, it is 10 ft. long and has an inclined mirror top. A temperature of 0° F. is maintained at the produce top while the outside stainless steel rail is warmed electrically to prevent chilling the bare arms of customers.

The cabinet is designed for use in larger installations that have a fast product turnover, according to E. V. Williams, Weber vice president. Able to hold approximately 1,000 packages, it makes a large stock of frozen foods quickly accessible to a number of patrons at the same time, he declared.

It also enables market operators to keep a good display on hand continually.

"When used in connection with backroom storage of frozen foods, these cases make an ideal arrangement for large volume selling," Mr. Williams said.

Height of the front of the case, for customer convenience, is 3 ft. 2 in., while the rear is 4 ft. 6 in. Overall depth of the cabinet is 2 ft. 11⅝ in.

The Frozel Lo-Temp cabinet has a graceful, streamlined front, finished off by modern rounded corners, Mr. Williams declared.

Open-Type Weber Case Makes Bow at Coast Show

Shirley Kimball, otherwise known as "Miss Frozen Foods of 1947," happily poses with the new 10-ft. Frozel open-type cabinet introduced at the show by Weber Showcase & Fixture Co. The manufacturer claims that this large capacity self-service case has increased sales of frozen foods in food stores as much as 300%.

"These features give more emphasis to the display and make the equipment blend more harmoniously with modern store interiors," he pointed out.

An automatic defrosting unit controls defrosting while a visible front has six plates of sealed-in glass.

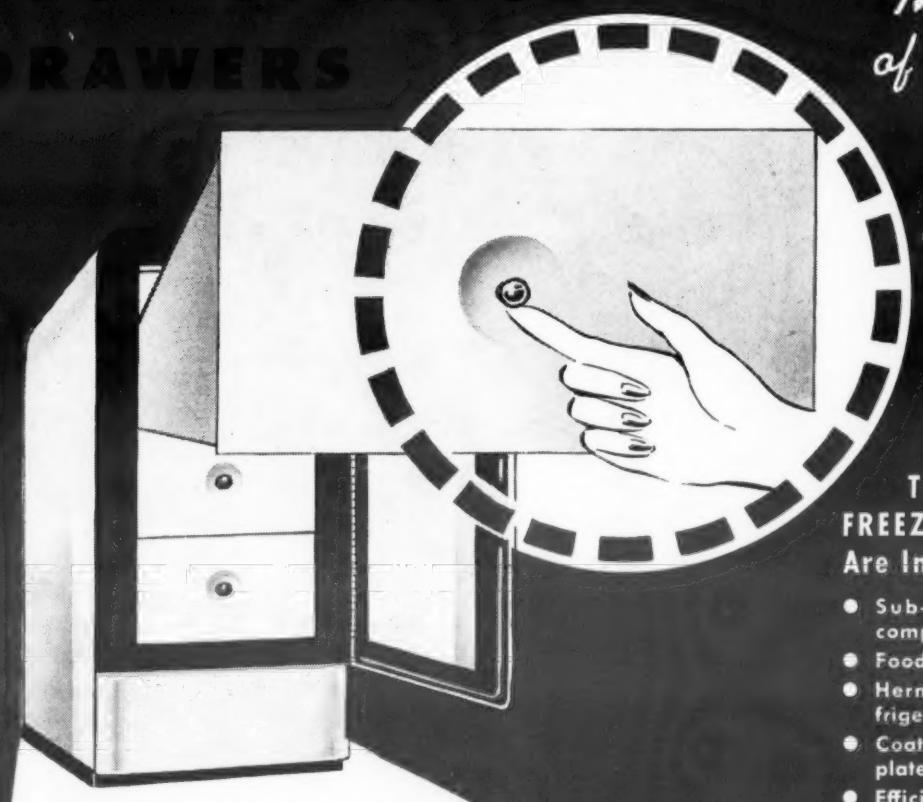
John E. Monroe, national sales manager for Weber, stated that the unit would remain unpriced until a regular production schedule had been achieved. Advance field tests, he said, at the Ralph Stores in Los Angeles showed that use of the new cabinet boosted frozen food sales by more than 300%.

Other Weber products exhibited included several models of the "Roll-A-Door" frosted food and ice cream cabinets, high visibility meat cases, and reach-in refrigerators.

Freez-all has all Features That "Set the Pace"

GLIDEASY FOOD STORAGE DRAWERS

OPEN AT "The Touch of a Finger"



These Other FREEZ-ALL FEATURES Are Important To You

- Sub-zero sharp freeze compartment
- Food segregation
- Hermetically sealed Refrigeration unit
- Coat-O'-Cold refrigeration plate
- Efficient insulation
- 8 cu. ft. capacity
- Dupont Dulux enamel finish
- Beautiful, modern, streamlined design
- Modern, sturdy hardware

Easily, smoothly, effortlessly, the Freez-all Glideasy food storage drawers roll out on ball bearing rollers at the touch of a finger. These sturdy, spacious, "well-type" drawers respond immediately to the touch of a finger, whether loaded with food or empty.

Freez-all Glideasy food storage drawers, the first and only complete, practical response to nation-wide consumer demand, will mean years of profitable business for Freez-all distributors and dealers.

Write for descriptive literature and complete information.

REFRIGERATION DIVISION
Dept. F-13
Portable Elevator Mfg. Co.
Bloomington • Illinois

Freez-all THE ORIGINAL DRAWER TYPE FREEZER

Freezing, Hauling & Display Units Get Big Play at Frozen Foods Show

Frez-O-Mat Shows Its 'Automat' Dispenser

* * *

The newest automatic "Frez-O-Mat" frozen food dispenser was labeled an "outstanding development."

Considerable attention was attracted by Frez-O-Mat's automatic "No stoop" frozen food dispenser in its initial West Coast showing. Milton Rifkin, president of the company, was in charge.

The upright cabinet contains 35 individual compartments for storing by brand and item. A bottom hinged door with a full-color replica of the particular item opens on each compartment. An automatic spring arrangement pushes packages to the front as the stock is removed.

An electric stock indicator with a signal light for each compartment shows at a glance when any need restocking. Reserve stock is kept in two large compartments at the base of the display cabinet. In addition, a green vigil light goes out when the temperature rises to 12° F. when the cabinet is set for 0° F. It also indicates power failures immediately.

Also demonstrating the cabinet at the Exposition was Sam Tepper, vice president, also of Chicago.

Refrigerated Trailer Featured by Fruehauf

Largest one-piece exhibit at the Show was a Fruehauf trailer with the "Trail-aire" conditioner compactly built into the trailer nose and operated at a cost of about one gallon of gas per hour.

A complete conditioning unit, it can be used to maintain high or low temperatures through a circulation system.

A reciprocating V-type, 4-cylinder compressor is powered by a 17-hp. 1,800 r.p.m. air-cooled engine. The refrigerant can be either methyl chloride or "Freon." All controls are accessible outside the body.

Exposition 'Blanketed' With Hussmann Units

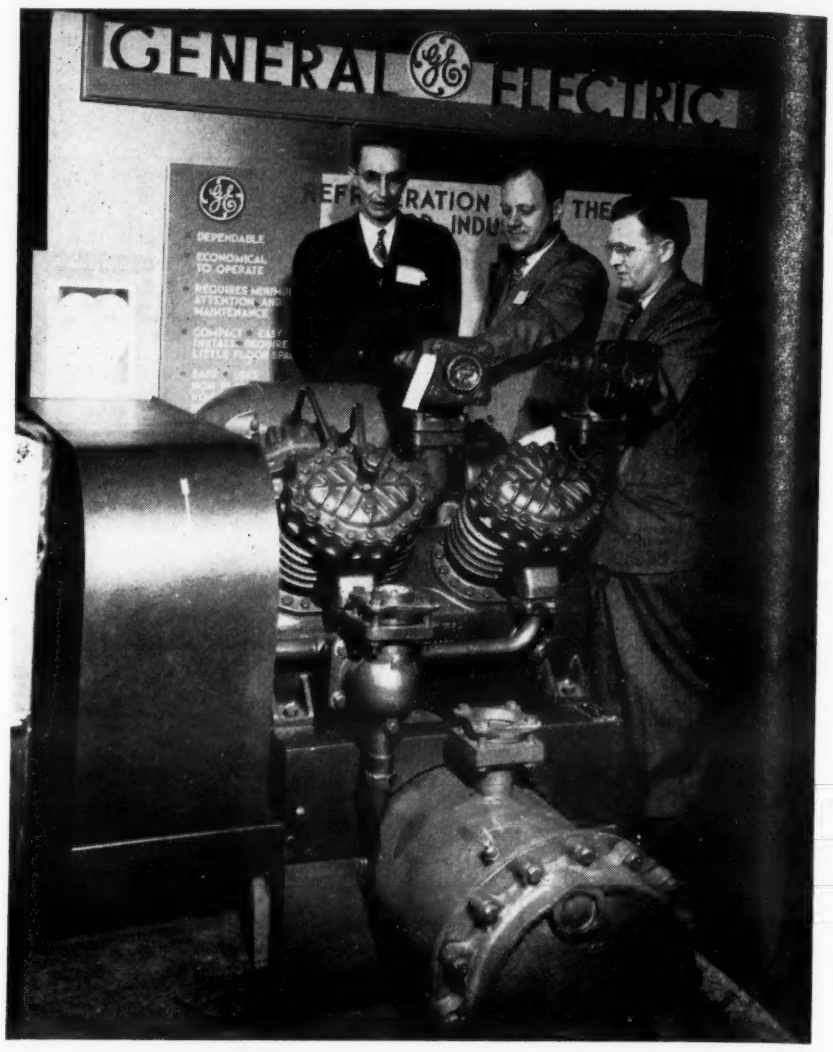
On display for Hussmann Refrigeration, Inc. was the 1946 frozen food display cabinet which drew so much attention from the opening day crowd that H. P. Vogt, sales promotion manager, was unable to create a finished display until well in the afternoon.

Hussmann stole a march on other box manufacturers by moving in early and lending sample cabinets to non-competitive exhibitors. All told, there were seven additional booths with Hussmann cabinets, as well as two others in hotel lobbies.

Frozen Food Shippers Resumed by Meese, Inc.

Returning to production after a war-time layoff, Meese, Inc. frozen food shippers made a reappearance at the Frozen Food Show. Designed for use by small firms which do not use a refrigerated truck, the shippers range up to 1,000 pounds and, under test, have maintained temperature for as long as 20 hours.

Insulation is provided by cork forced into pockets under 1,500 pounds pressure. Laminated wood provides rigidity and additional insulation.



This 60-hp. "Freon" condensing unit takes up a lot of space in the General Electric display, but it's the type used for producing 0° F. storage temperatures and below-zero freezing for frozen foods, points out John Turner (center), field sales manager of G-E's Air Conditioning Dept., in checking the unit with C. D. Williams (left), head of General Air Conditioning & Heating Co., Oakland, Calif., and E. W. Howes, Pacific district manager of G-E air conditioning.

'Biltwell' Construction Shown In Cutaway Unit

R. C. McIlwaine demonstrated features of the Fraser & Johnston "Biltwell" cabinets using a cellophane covered cutaway to show the 6 in. of cork and fiber glass insulation.

Each unit, he said, is given an actual performance test before it leaves the factory and the results of the trial run are forwarded with the unit.

Made in a basic 10-cu. ft. box, the "Merchandizer" model can be adapted to any particular store layout by arranging the equipment in L, U, or T-shaped sections, all operated from a remote compressing unit.

Each cabinet has four high visibility plexi-glass hinged tops, extremely light weight for customer convenience and permitting service by several customers at a time.

Also on display was the Biltwell "Marketer," an upright reach-in cabinet.

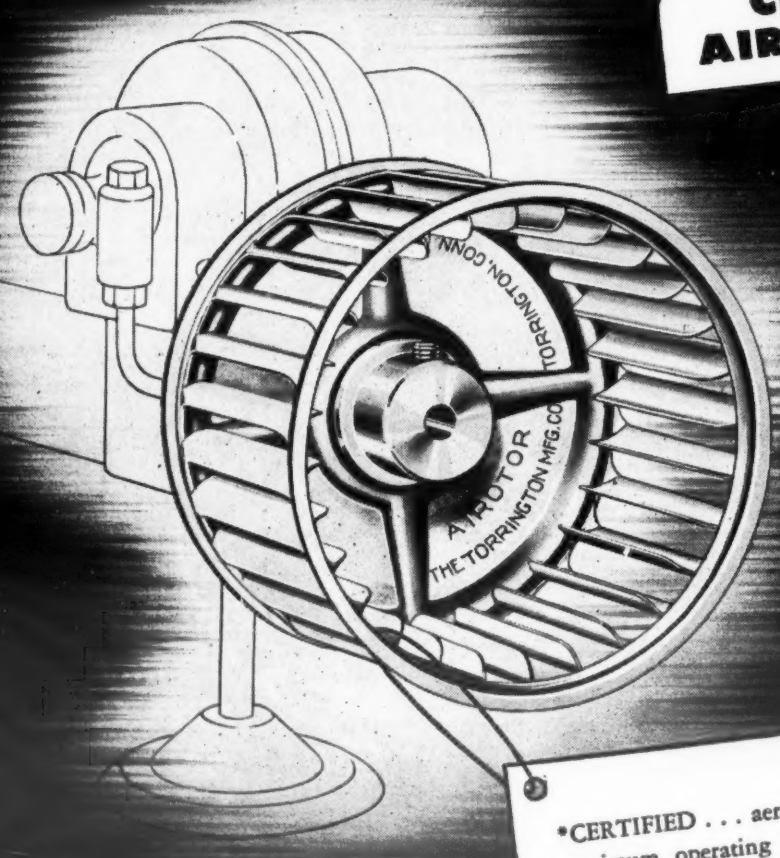
Consolidated Accents Custom Cabinet Work

A variety of commercial refrigeration cabinets with emphasis on built-to-order boxes to meet special requirements was offered by Consolidated Electric Products through Barney Morrow, exclusive distributor. All freezers were self-contained and featured stainless steel tops, sliding doors with 4½ in. hard fiber-glass sealed insulation.

Two full length cold plates were guaranteed to maintain zero temperature in each model. Mr. Morrow quoted prices ranging from $645 for the 12 cu. ft., ⅓-hp. unit to $1,085 for the 30 cu. ft., ½-hp. unit.

Three Ways Better with Torrington

CERTIFIED* AIR IMPELLERS



*CERTIFIED . . . aerodynamically designed for maximum operating efficiency with quietness; guaranteed to perform as rated under NAFM and NEMA Test Code conditions; hand gauged for alignment and balance. The Torrington Manufacturing Company.

Success for a newly designed oil burner was threatened by combustion troubles, high noise level and a one-sided flame. Laboratory study of the unit by Torrington engineers established that incorrectly estimated static pressure had resulted in the selection of too small a wheel, giving too little air.

Without enlarging the housing, a 5¼" Airotor Blower Wheel boosted air delivery the necessary amount. A slight position change of the transformer mounting was recommended to avoid interference with scroll development. Today, this oil burner operates quietly and efficiently, is commercially successful.

To benefit most from the advantages of Torrington Certified Air Impellers, it is recommended that you consult Torrington while your product is in the early stages of design.

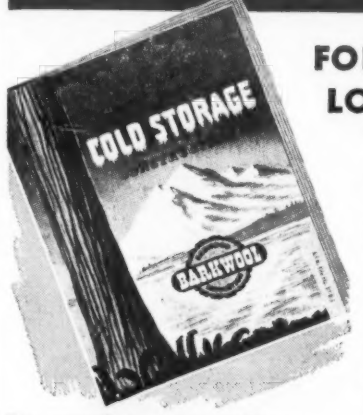
THE TORRINGTON MANUFACTURING COMPANY, TORRINGTON, CONNECTICUT

AIRISTOCRAT FAN BLADES • AIROTOR BLOWER WHEELS • IMPROVE PRODUCT PERFORMANCE

ACE ICE CREAM CABINET CORPORATION
ACE
NEW YORK 60, N.Y.

MANUFACTURERS OF
Ice Cream Cabinets
Farm and Home Freezers
Frozen Food Display Cabinets
Soda Fountains and Bob Tails.

INSULATING FACTS



FOR COLD STORAGE AND LOCKER PLANT OPERATORS

• Whether you are building or remodeling your cold storage or locker plant, you'll find valuable information in this "HAND BOOK ON COLD STORAGE CONSTRUCTION." It tells how to figure heat loss, how to estimate amount of insulating material needed for a job. It gives helpful details on construction and vapor-proofing. It also explains in detail how and why Redwood BARKWOOL gives you these nine vital advantages:

EFFICIENCY • RESISTANCE TO MOISTURE • PERMANENCE • ENDURANCE • UTILITY • FIRE RESISTANCE • ODORLESS • VERMIN REPELLENT • ECONOMY

For your free copy—Address
Redwood Fibre Products Co., Inc.
Dept. E, 228 N. LaSalle St., Chicago 1, Ill.

REDWOOD BARKWOOL INSULATION
A PRODUCT OF
REDWOOD FIBRE PRODUCTS COMPANY, Inc.
SANTA CRUZ, CALIFORNIA

This Dealer Studied Profit Problems BEFORE Opening Appliance Annex

He Spent Several Months Conferring with St. Louis Dealers

ST. LOUIS—Feeling that he has met in advance all of the really serious problems which will appear in the next 18 months, Joseph R. Marion, head of the St. Louis Hardware & Shade Co., has opened his new $7,000 "appliance annex."

First step which Mr. Marion took preparatory to opening his appliance department was to spend several months discussing with established appliance dealers what the profit losing problems of each had been. Then the St. Louis Hardware & Shade Co. secured franchises from various manufacturers.

The third move was the building of the annex, a 30,000-sq. ft. addition, which increases the store's frontage to 120 ft. Everything from the postless glass front to the platforms for the appliances has been planned for the utmost in sales appeal.

All appliances are in full operation, and the refrigerators are stocked with chilled drinks for the customers. At the rear of the sales floor is a "closing office" where the customer and salesman may discuss financing problems.

Financing at the present is being handled by a finance firm for a small carrying fee, but the company hopes in the future to be able to absorb the charge itself.

By making absolutely no deliveries off the sales floor the dealer keeps a full inventory for his sales staff to work with.

Recognizing the problem of securing and holding a capable and loyal sales force, Mr. Marion took steps to accomplish just this. Working with the Veterans' Administration, he hired three promising men from among 100 applicants.

Having selected these men, he pays them a salary well above the prevailing rate for apprentices. This along with the veterans' allowance provides them with an adequate income. Now these men spend half days in the store and the other half studying appliances and following up prospects.

When competitive selling returns, Mr. Marion plans to have these men outside following up leads from old customers, responses to advertising, and visitors to the store. If necessary they will go from house to house. Each one will have a restricted district, draw a salary and 3 or 5% commission depending upon volume of sales.

The service shop will be "one of the top selling points in the hardware store's merchandising plan," because it will enable the store to accept trade-ins, which dealer Marion recognizes as a future necessity.

The shop will be staffed by ex-G.I. mechanics and will be equipped to completely overhaul any appliance. Mr. Marion hopes in this way to break even on every sale.

The dealer's present advertising consists of 300 to 400 lines of newspaper advertising per week, most of which will soon be devoted to major appliance promotion.

CPA Forecasts High '47 Shipments of Steel to Mfrs. of Wiring Devices

WASHINGTON, D. C.—At a recent meeting of the Electrical Outlet, Switch Box, and Fittings Industry Advisory Committee, the Civilian Production Administration said that the steel industry has agreed to channel to manufacturers of wiring devices used in the Housing Program approximately the same amount of steel in each of the last three quarters of this year as this industry was allocated by CPA for the manufacture of these items during the first quarter of 1947.

This amounts to approximately 30,000 tons of steel each quarter. This voluntary cooperation by the steel industry should enable the wiring device industry to continue near capacity production for the remainder of the year.

Minimum essential 1947 requirements for outlet, switch, and receptacle boxes and "BX" and "Romex" type box connectors were outlined by CPA. These requirements, which are chiefly for housing, include maintenance in existing housing, rural electrification, and non-deferrable commercial and industrial construction projects.

Total national requirements for 1947 as presently estimated are:

Outlet, switch, and receptacle boxes, 161 million; "BX" and "Romex" type box connectors, 207 million. These figures do not include estimated deficits in 1946 of 24 million boxes and a total of 49 million connectors.

THE NEW Streamlined 'WIZARD' DRY BOTTLE COOLER

FEATURING THE ROLLBACK 1½" INSULATED LIDS—
Adjustable wire partitions and shelf offers greater capacity—
Sturdily constructed of heavy rust-resisting metal—
Recessed base—High bake finish—Sizes 4-6-8 ft.

LA CROSSE COOLER CO.
2809 LOSEY BLVD. So., LA CROSSE, WISCONSIN
Formerly La Crosse Novelty Box Co.

Wall WIRE PRODUCTS COMPANY
PLYMOUTH • MICHIGAN
Makers of
REFRIGERATOR SHELVES • STAMPINGS
FORMED AND WELDED PRODUCTS

We are experts in gas, arc, and resistance welding. Send us details of any welded assembly and let us offer our suggestions.

H. C. Taylor Will Represent NERA In 7 Western States

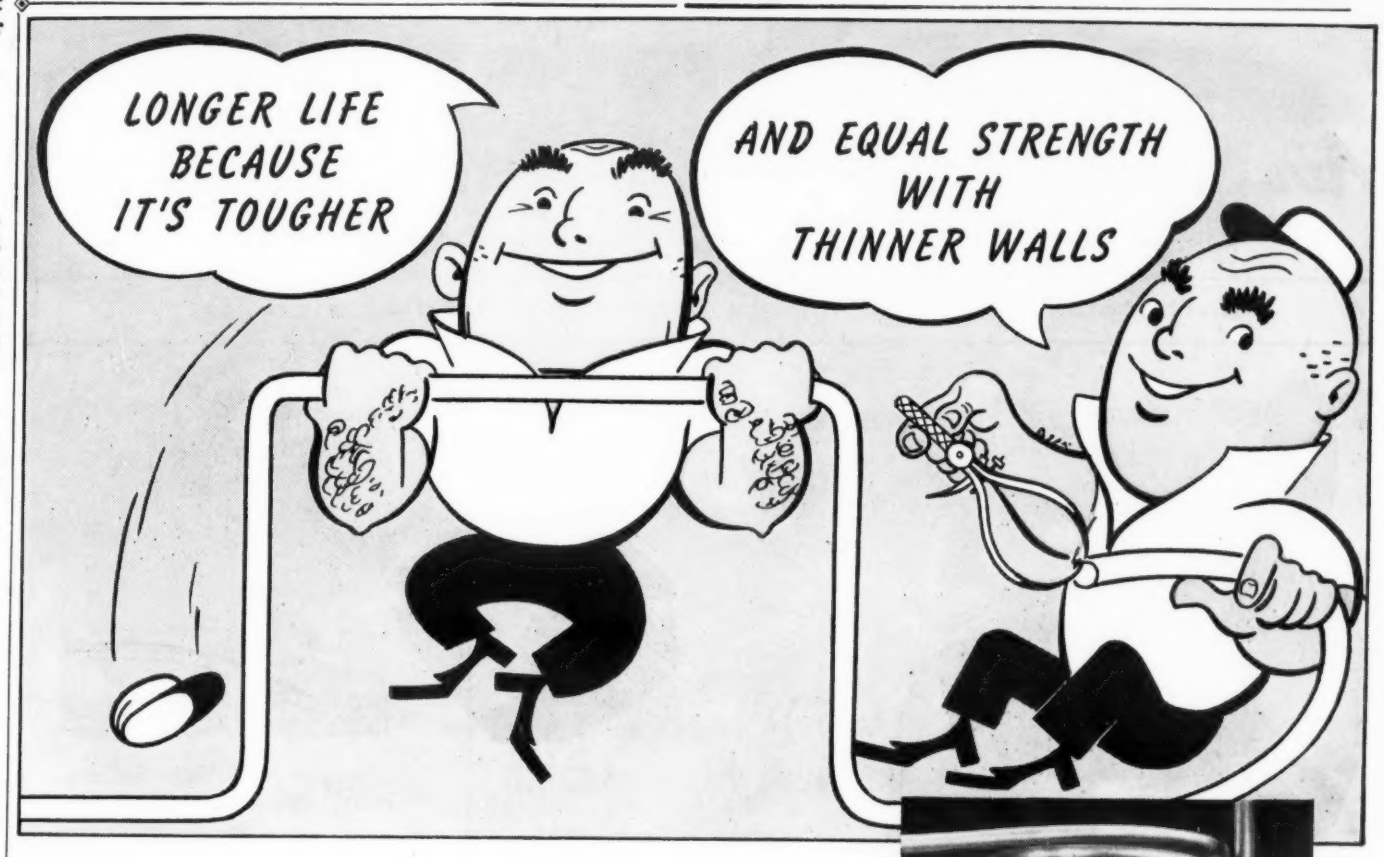
WASHINGTON, D. C.—Harold C. Taylor, president of L. C. Taylor Co., Pasadena, Calif., has been elected Regional Governor of National Electrical Retailers Association, it is announced by C. C. Simpson, managing director.

Mr. Taylor officially represents NERA members in Region No. 12, comprising the states of California, Oregon, Washington, Idaho, Nevada, Utah, and Arizona, in all matters pertaining to association policies.

Parts Wholesaler In Dayton To Hold 'Open House' April 19

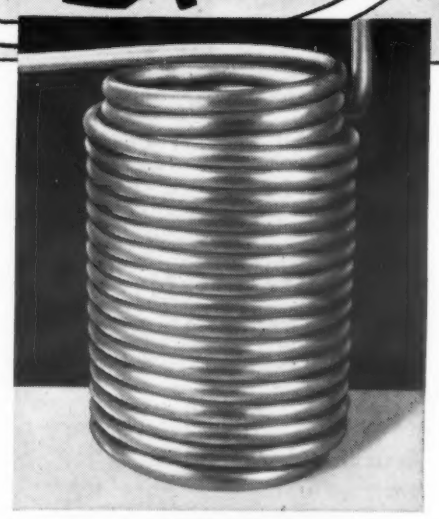
DAYTON—Allied Supply Co., refrigeration parts and equipment wholesaler here, will hold an "open house" party April 19 to celebrate the remodeling and expansion of its headquarters at 359 W. Monument Ave., John L. Homan, general manager, has announced.

Allied Supply has taken over adjoining property in its expansion program, providing in all approximately 10,000 square feet of floor space for the firm's operations.



Why Bundyweld Nickel makes better beverage Tubing

Users of Bundyweld Nickel Tubing enjoy maximum resistance to denting, collapsing or bursting, thanks to unique double-wall construction and the inherent strength of Nickel. Moreover, this strength permits manufacture of Bundyweld Nickel Tubing in much lighter gauges which are equal in strength to thicker walled tubing of other metals.



Bundyweld Nickel Tubing fabricates with ease and retains its tubular structure despite short radius bends—advantages which give it wide application in the beverage field, as demonstrated in the beer coil pictured above.

6 other reasons for buying Bundyweld Nickel

1. Costs no more than old types of tubing for beer and carbonated water . . . yet outlasts them all and defies pitting, corrosion, brines, electrolytic or galvanic action.
2. Fast Cooling . . . Nickel cools liquids faster because it has high heat conductivity and high-strength Bundyweld permits using thin wall tubing.
3. Protects purity . . . promotes hygienic cleanliness as attested by world-wide use of Nickel in beverage and food processing equipment.
4. Easy to clean . . . any ordinary cleaning compounds or fluids keep Nickel tubing fresh and sanitary.
5. Easy to form . . . coils more easily than other high-strength materials, and forms readily to any contour wanted in running leader lines through conduits. Various standard and special type fittings can be used.
6. Ready for you today . . . in coils up to 100 feet, in standard diameters.

Write today for FREE NEW BOOKLET—"How a Double Wall Gave a New Twist to Tubing" . . . gives you all the facts about Bundyweld Nickel Tubing. Distributors listed below will mail you the booklet and any other information about Bundyweld Monel and Nickel Tubing. *Bundy Tubing Company, Detroit 14, Michigan.*

BUNDY TUBING
ENGINEERED TO YOUR EXPECTATIONS

BUNDY TUBING DISTRIBUTORS AND REPRESENTATIVES—BUNDYWELD NICKEL AND MONEL TUBING:

ALLOY METAL SALES LTD.
TORONTO 5, 861 BAY ST.
EAGLE METALS CO.
SEATTLE 4, 3628 E. MARGINAL WAY
PORTLAND 5, ORE., 307 NEW FLIEDNER BLDG.
METAL GOODS CORP.
DALLAS 9, 6211 CEDAR SPRINGS ROAD
HOUSTON 1, 16 DRENNAN
NEW ORLEANS 13, 432-438 JULIA ST.
TULSA 3, 302 NO. BOSTON ST.
PACIFIC METALS CO., LTD.
LOS ANGELES 21, 1400 S. ALAMEDA ST.
SAN FRANCISCO 10, 3100 19TH ST.
STEEL SALES CORP.
CHICAGO 23, 3348 S. PULASKI ROAD
DETROIT 10, 5151 WESSON AVE.
INDIANAPOLIS 2, 1916 NO. MERIDIAN ST.
MILWAUKEE 4, 647 W. VIRGINIA ST.
MINNEAPOLIS 15, 529 S. 7TH ST.
ST. LOUIS 10, 4565 MC REE AVE.
J. M. TULL METAL & SUPPLY CO.
ATLANTA 3, 285 MARIETTA ST.
WILLIAMS AND CO., INC.
CINCINNATI 14, 1921-1927 DUNLAP ST.
CLEVELAND 14, 3700-3716 PERKINS AVE.
COLUMBUS 15, 31 NORTH GRANT AVE.
PITTSBURGH 12, 901-937 PENNSYLVANIA AVE., N.S.
TOLEDO 2, 650 E. WOODRUFF AVE.
WHITEHEAD METAL PROD. CO., INC.
BALTIMORE 17, 413 W. NORTH AVE.
BOSTON 41, 235 BRIDGE ST., CAMBRIDGE, MASS.
BUFFALO 2, 254 COURT ST.
NEWARK 5, 205 FRELINGHUYSEN AVE.
NEW YORK 14, 303 WEST 10TH ST.
PHILADELPHIA 40, 1955-75 HUNTING PARK AVE.
SYRACUSE 2, 242 W. WASHINGTON ST.

PUFFER-HUBBARD GRAND HAVEN P-H LINE MFG. COMPANY MICHIGAN

To Preserve it "PH" it with a REACH-IN Cabinet

PUFFER-HUBBARD

ANOTHER CASE OF GOOD REFRIGERATION ENGINEERING

- Electric Welded Steel Frame
- Welded Interior Porcelain Lining
- Porcelain Exterior
- Exclusive Grad-u-matic Air Conditioning
- The only refrigerator with this patented feature

All these plus

All these features and many other refinements are combined into every Puffer-Hubbard cabinet to make it today's best buy. Solid door or glass door models with Thermopane Triple Glass. Also available, Icemaker units.

Also Manufacture
Dough Retarding Cabinets
Self Serve Vege-Cases
Dry Beverage Coolers
Self Serve Dairy Cases
Write for information

PUFFER-HUBBARD MFG. CO.
The Mark of a Good Case
GRAND HAVEN, MICHIGAN, EST. 1898

They'll Do It Every Time . . . . By Jimmy Hatlo

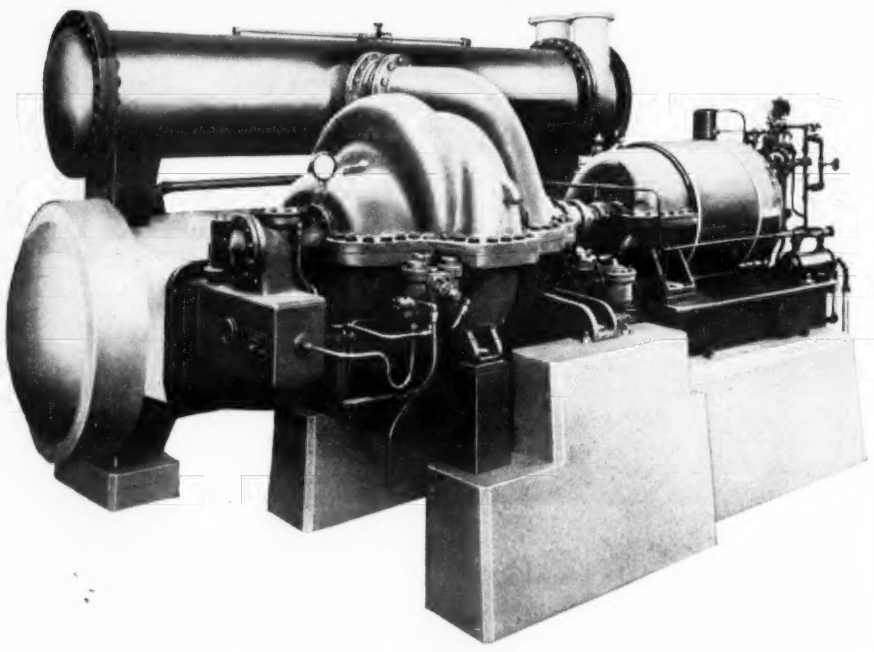
GRUDGEON IS STRICTLY FROM MISSOURI WHEN IT COMES TO ANY BUSINESS DEAL
BEFORE WE SIGN UP FOR THAT BOTTLED-WATER SERVICE, CHECK THEM WITH THE BETTER BUSINESS BUREAU, THE BOARD OF HEALTH AND THE F.B.I.
REST IS RUST
JIMMY FAINT!
BUT WHEN IT COMES TO HIS POLISHED PATE HE'S GOOD OL' GULLIBLE JOE
Thanx to "THE GANG", ERIE, PA
WHAT!! THAT STUFF ACTUALLY GROWS HAIR?? PASS OVER TWO BOTTLES, PARTNER!
SMELLO MIRACLE HAIR GROWER 25¢
RUSH
COPR. 1947, KING FEATURES SYNDICATE, Inc., WORLD RIGHTS RESERVED
2-18

Out With Special Privileges--Revise the Wagner Act!

WORTHINGTON

Air Conditioning and Refrigeration Report

Worthington Pump & Machinery Corporation, Harrison, New Jersey



WORTHINGTON OFFERS NEW, IMPROVED CENTRIFUGAL REFRIGERATION SYSTEMS

Recently improved designs now enable Worthington to offer Centrifugal Systems for use with most refrigerants, including the lighter hydrocarbons, and for any air conditioning or cooling process — chilling water, brine, chemicals, lubricating oils, etc. — at temperatures to meet any requirement. Now designed for temperatures as low as —160°F.

In the 450-TR Centrifugal Refrigeration Unit illustrated, for example, every one of the essential elements — 3-stage compressor, water cooled condenser, specially designed horizontal evaporator and powerful steam turbine — is Worthington designed and made.

This means perfect coordination, with the added advantage that the Worthington user can place full responsibility for his system's operation on a single manufacturer.

Other compact, space-saving units are available in capacities of 150 to 2600 tons, each engineered by Worthington to give you many years of trouble-free, low-cost refrigeration.

Worthington Pump and Machinery Corporation, Harrison, N.J. Specialists in air conditioning and refrigeration for more than 50 years.

A7-8

Famous N. Y. Hotel Selects Worthington Air Conditioning

Famed for its luxurious appointments, New York's huge Commodore Hotel counts on Worthington centrifugal refrigeration equipment for a year-round supply of clean, invigorating air. Today's comfort-wise guests have learned to expect such up-to-date air conditioning as an essential feature of every modern hostelry.

Air Conditioning in Smaller "Packages"

Worthington's Self-Contained Air Conditioners, Model SYC, are built in 3 and 5 ton refrigeration capacities. These amazingly efficient "packaged" units are ideal for promoting better health and better business in every type of smaller business and industrial organization.

The Advantages of Worthington "Integration"

Worthington, making so many of the "inner vitals" — compressors, condensers, pumps, turbines, valves, fittings, etc. — of its air conditioning and refrigeration equipment, is able to combine these units into a completely "integrated" system that will assure you long, efficient, economical service . . . another reason why *there's more worth in Worthington*. See your nearby Worthington distributor for details.

WORTHINGTON

Air Conditioning and Refrigeration

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark registered U. S. Patent Office; Est. 1926

AIR CONDITIONING AND REFRIGERATION News

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F. M. COCKRELL, *Founder*

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VOLUME 50, NO. 14, SERIAL NO. 942, APRIL 7, 1947

Cultivate the Farmers

ONCE upon a time an American manufacturer of food specialties approached his advertising agency with a problem. (This advertiser retained a different agency for each national market.) It seems that his tomato catsup, while of undeniably high quality, wasn't achieving sufficient sales volume to break through the red into the black.

After much thought and palaver, after many expensive surveys, and not a little Scotch-and-soda, the agency Master Minds and the manufacturing Brass Hats came to a welding of brains on this inevitable solution to the problem: their only hope was to promote the sales of tomato catsup *per se* and *in toto* (not just their own brand).

So, that premise immediately called for another extravagantly expensive survey. This survey turned up a startling, if obvious, fact. Tomato catsup, the researchers proved, was largely consumed at lunchtime–in restaurants, cafeterias, and clubs. Its home sale was not only poor, but dwindling.

This momentous conclusion stirred a number of stumps. It was deduced that the American male, who customarily eats lunch away from home, liked tomato catsup. In commercial eateries he lapped it up in great quantities. But why didn't he use it at home?

Answer: Because his wife didn't place it on the table.

Further surveys showed that many housewives were squeamish about catsup because spillage soiled their table linens, because the bottle appeared ungainly amidst their beautifully arranged dinner displays, and because they resented the use of such an omnibus condiment with their carefully prepared delicacies.

So the combined boards of strategy decided to advertise extensively to housewives, through women's magazines, this theme: Your husband likes tomato catsup, as proved by his heavy consumption of this delightful taste enhancifier at lunch downtown. If you would be a dutiful and loving wife, you should serve tomato catsup when he comes home to dinner.

First advertisement in this series ran intriguing copy, embellished with a full color illustration of a beautiful red-headed waitress bringing to a luncheon table a handsome tray of food–prominently in the middle of which was an unmistakable bottle of the advertiser's tomato catsup.

Headline was: "What she knows about your husband."

Here came the break.

One of our good-neighbor advertising agencies saw this first insertion, and its entire personnel was collectively shocked by the headline. (This foreign agency had customarily borrowed their American counterpart's copy, headlines, and illustrations without so much as a thank-you.) Immediately a conference was called. The stooges agreed with their principal that the American headline was in decidedly poor taste so far as their conservative national audience was concerned. They all went into a huddle, hoping to revise that headline so as to make it more factual and less suggestive.

What they came up with (and what turned all that advertiser's foreign business over to the American agency) was this priceless topline:

"He gets it downtown; why not give it to him at home?"

That's a grand story. And it has a moral for today's manufacturers and distributors of frozen foods equipment.

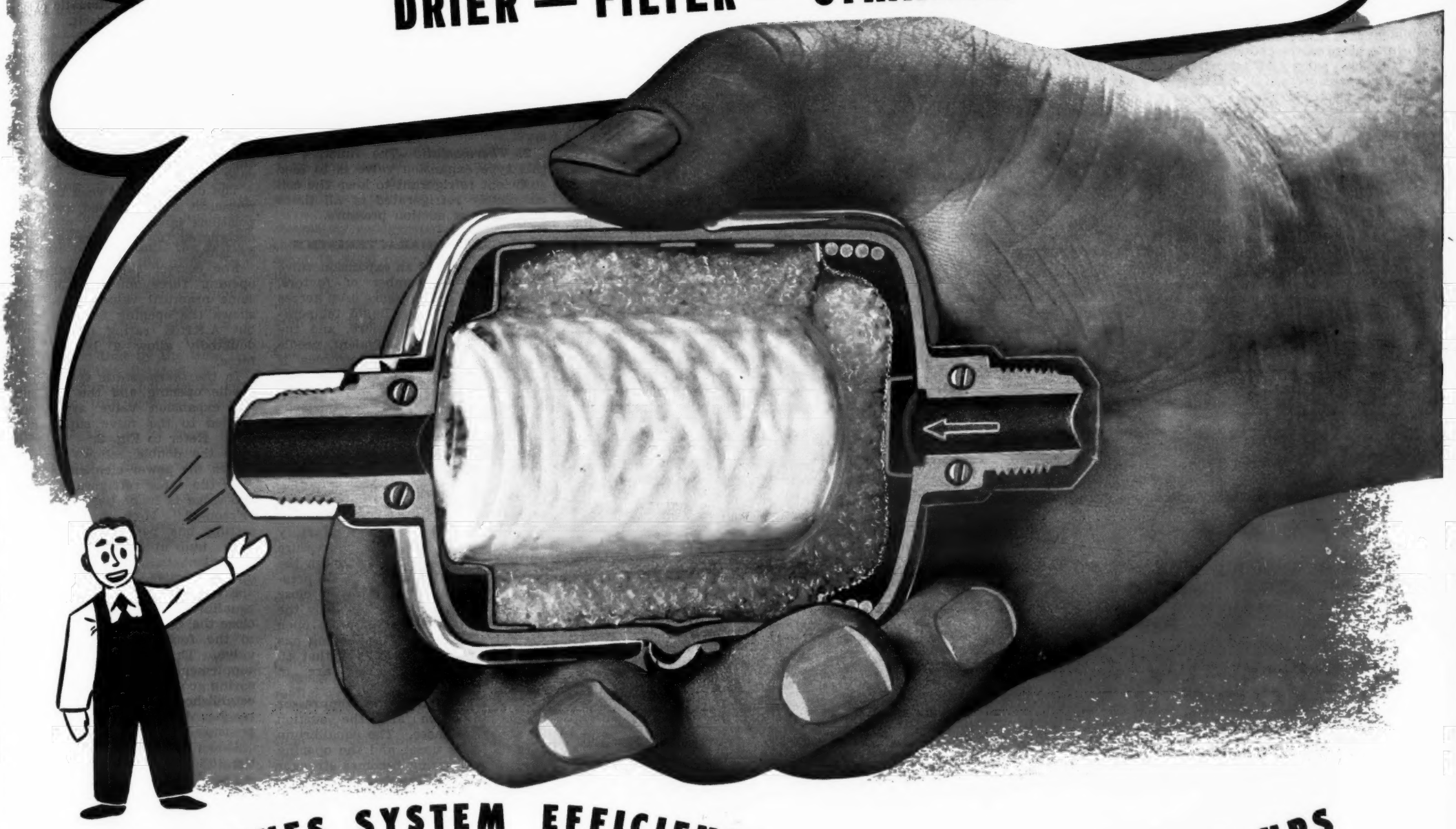
Any city-dweller can find a home freezer today. But how about the farmer, the producer of food? You can get a freezer down-town; why not sell it to them "at home?"

Biggest market for low-temperature refrigerators is in the rural areas. These folk not only understand how *useful* sub-zero equipment is, but they have the money to pay for it.

Any sales manager who overlooks this lush market should have his head examined. Farmers and small-towners have been the quickest to realize how sub-zero refrigeration equipment can be put to good use. And they are the steadiest buyers. Furthermore, their continued high income seems assured.

Are you worried about diminishing buying power in the industrialized cities? Forget it! Sell to the farmers! They have the money!

TAKE DIRT AND MOISTURE OUT OF YOUR REFRIGERATION SYSTEMS *FAST*.... with a TR-AP-DRI .... DRIER — FILTER — STRAINER



● IMPROVES SYSTEM EFFICIENCY . . . PREVENTS FREEZE-UPS

The A-P TRAP-DRI will save you many costly callbacks . . . enabling you to avoid minor service troubles due to dirt, solder particles, scale, gummy deposits, acids and moisture.

These troublesome impurities are trapped and taken out of your system immediately, with a TRAP-DRI on the job. Offering *no appreciable pressure drop,* it provides a filter unit as effective as a 900-mesh strainer . . . *plus* a highly efficient charge of Silica Gel capable of absorbing up to 16 per cent of its weight in moisture — far more than other drying agents.

Put the A-P TRAP-DRI to work for your benefit on every job — for savings in service time, improved valve operation and cost-savings for your customers. Use it on new or present installations. Three sizes are stocked by leading refrigeration parts jobbers. See them—or write for latest bulletin No. TD-110.

SEE THIS CUTAWAY SAMPLE OF THE TR-AP-DRI AT YOUR JOBBER

It graphically illustrates the design and construction of TRAP-DRI with its high-efficiency honeycomb filter and high-capacity Silica Gel drier.

AUTOMATIC PRODUCTS COMPANY

2450 NORTH THIRTY-SECOND STREET, MILWAUKEE 10, WISCONSIN

Export Department — 13 East 40th Street, New York 16, N. Y.

DEPENDABLE *Refrigerant Valves*

STOCKED AND SOLD BY GOOD REFRIGERATION JOBBERS EVERYWHERE . . . . . RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS

Back to Fundamentals

Functions & Operations of Automatic & Thermostatic Expansion Valves Analyzed

By F. Y. Carter, Detroit Lubricator Co.*

Expansion valves are nothing more than pressure reducing valves. They are designed so that they will open and feed the fluid being metered only after the pressure in the low side of the valve has been reduced to a low value as compared to the valve inlet pressure. When the fluid being metered is a volatile refrigerant, its pressure is usually reduced to a point where the saturation or boiling temperature is below the temperature surrounding the evaporator.

Heat flows in to the refrigerant, this causing a boiling or "expansion" to take place at the reduced pressure of the low side. Consequently the term "expansion valve" has become common usage in the refrigeration field.

TYPES OF EXPANSION VALVES

Expansion valves fall generally into three classes:

1. *Hand Expansion Valve*—This type of valve is manually operated and has no automatic features. It is made to function properly on the system by simply adjusting the needle opening manually until the proper low side pressure is obtained. Changes in the liquid pressure, liquid temperature, and load on the evaporator make continuous observation and adjustment necessary. Since we are interested only in self-controlled expansion valves we will give no further consideration to this type.

2. *Automatic Expansion Valve*—This type of valve is in very common usage today. It is designed with a single control element responsive to pressure only and will open and feed refrigerant at a pressure determined by the valve adjusting spring setting.

3. *Thermostatic Expansion Valve*—This type of valve is the most widely used of the three. It is designed with two control elements, one responsive to pressure, the other responsive to temperature, and will open and feed refrigerant regardless of suction pressure when the proper difference between saturation suction pressure and feeler bulb temperature is established.

The power element of the thermostatic type valve responds to pressure, this pressure being controlled by the temperature of the feeler bulb itself. Therefore, since the valve will open when the proper difference in pressure between the pressures corresponding to the saturation suction temperature and the power element saturation temperature is obtained, it might be described as a pressure differential expansion valve.

For proper operation of the thermostatic valve the feeler bulb should be clamped to the evaporator outlet suction line. The valve control then comes from the dual action of the temperature of the gas leaving the evaporator and the pressure within the evaporator.

EXTERNAL AND INTERNAL EQUALIZATION

The thermostatic expansion valve most commonly used is of the *internally equalized* type which means that the pressure element responds to pressure at the expansion valve outlet, i.e., the evaporator inlet.

Pressure drop in the evaporator results in a lower saturation temperature at the coil outlet than at the coil inlet and interferes with the superheat control of this type expansion valve.

Externally equalizer type expansion valve is one in which the pressure element responds to pressure leaving the evaporator by means of a special pressure connection which eliminates the interference to proper valve control caused by evaporator pressure drop.

POWER ELEMENT CHARGE

Thermostatic expansion valves are further classified as to the type of power element charge.

a. *Gas Charged*—This type of power element is charged with a limited amount of charging fluid in a manner which allows exact control of the pressure at which the element will allow the valve to open initially. By proper design this type of power element charge is utilized in both dual element and single element Thermostatic Expansion Valves.

b. *Liquid Charged*—This type of charge is used in the single diaphragm expansion valve and does not offer any control of the pressure at which the valve will initially open.

*Presented at the eighth annual educational conference, Interprovincial Association, Refrigeration Service Engineers Society, Montreal, Que.

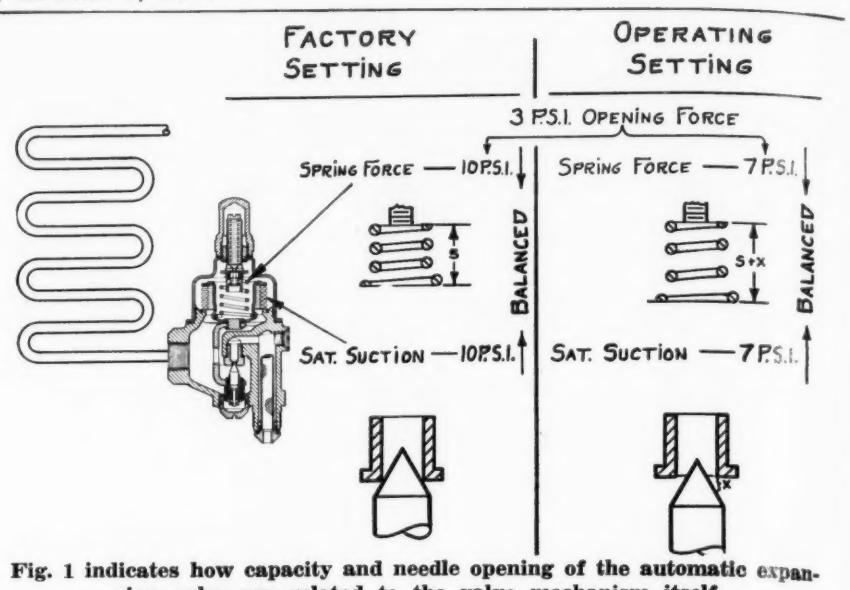


Fig. 1 indicates how capacity and needle opening of the automatic expansion valve are related to the valve mechanism itself.

FUNCTION OF EXPANSION VALVES

1. *Automatic*—The function of this type expansion valve is to feed refrigerant at a constant suction pressure.

2. *Thermostatic*—The function of this type expansion valve is to feed sufficient refrigerant to keep the coil completely refrigerated at all times regardless of suction pressure.

CAPACITY CHARACTERISTICS

The capacity of an expansion valve depends on a number of factors, among them the pressure drop across the orifice, the inlet liquid temperature, the suction pressure, and the orifice area, or its equivalent, needle opening. For practical purposes, if all other factors are held constant, it may be said that the capacity varies directly with the valve needle opening, this being true within the limits of movement ordinarily used.

In the *automatic* type valve the needle opening and the capacity of the expansion valve are definitely related to the scale of the valve mechanism itself. Refer to Fig. 1.

The expansion valve is factory adjusted to close off at a pressure of 10 p.s.i. Under this condition the force resulting from the suction pressure acting on the bellows to close the valve is exactly balanced by the force of the spring tending to open the valve. Note that the spring has a compressed length "S" and that all forces within the valve are in equalibrium.

Now assume that the compressor begins operation and the suction pressure decreases. The equalibrium at 10 p.s.i. is upset and the opening force of the spring becomes stronger than the closing force of the bellows. As a result the valve mechanism moves toward an open position, and as this operation takes place the spring length changes from "S" to S + X where X is the valve needle opening.

The valve continues to open until the amount of refrigerant passing through the orifice balances the compressor demand, at which time a new equalibrium is established, in this case 7 p.s.i.

The difference between the suction pressures at the closed and demand positions is equal to 3 p.s.i. and is designated as the valve opening pressure.

For correct capacity ratings this opening force must be limited to some practical value. The example shows the opening force of 3 p.s.i., but A.S.R.E. rating codes will undoubtedly allow a larger opening force.

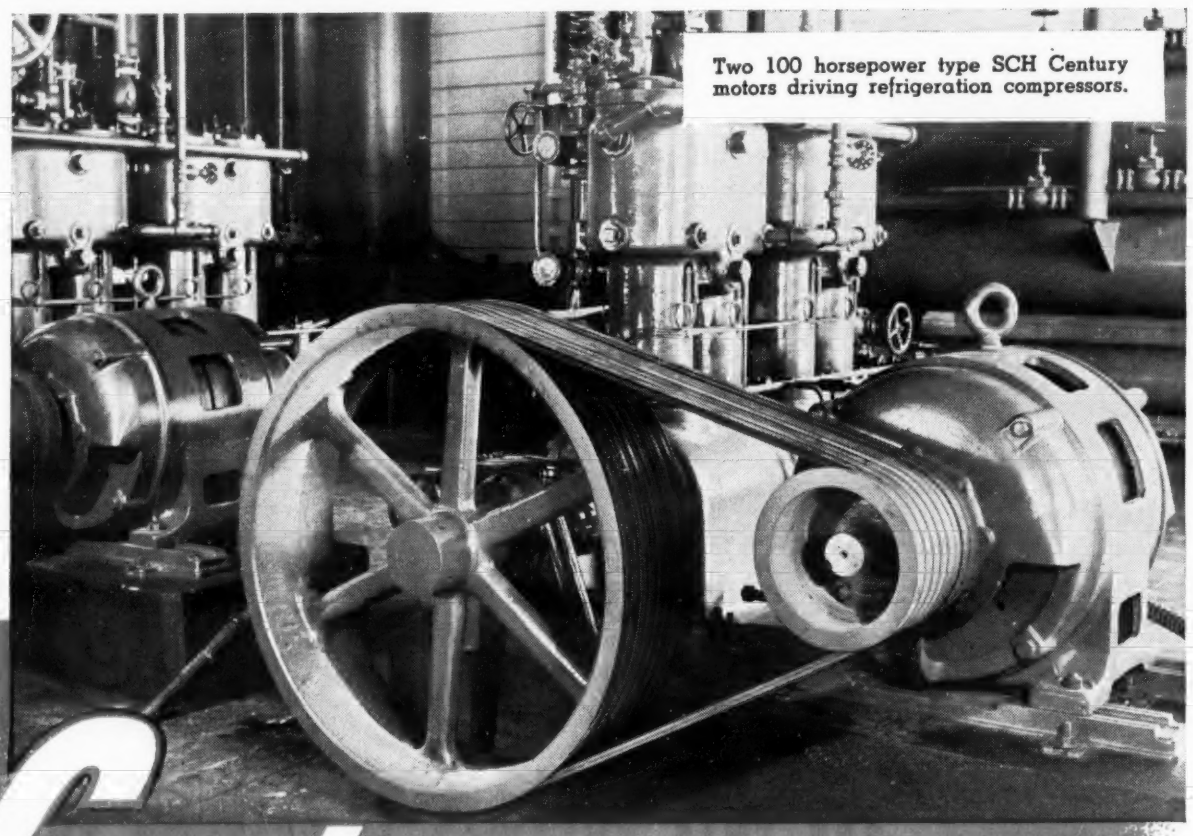
In the *thermostatic* type valve the needle opening and the capacity of the expansion valve are definitely related to the valve superheat setting. Refer to Fig. 2.

In the double bellows type valve shown the power element is charged with the same refrigerant on which the valve is to be used, in this case "Freon-12." Here a 10° superheat setting has been established. The feeler bulb at 25° F. exerts a force equivalent to 24½ p.s.i. tending to open the valve.

For the valve forces to be in equalibrium, all forces tending to close the valve must be exactly equal to the forces tending to open the valve. Therefore, by means of the supplementary valve forces, the spring combination, a condition is established where the needle just reaches the seat when the suction pressure is equal to 17½ p.s.i.

Under this condition of equalibrium the 10° static, or factory, superheat is established. The needle is just ready to move off the seat with any unbalance of forces.

(Continued on next page)



Two 100 horsepower type SCH Century motors driving refrigeration compressors.

Century TYPE SCH MOTORS

Provide the Power You Need to Start Compressors Easily · · Smoothly · · Quietly

High starting torque, with low starting current, makes type SCH Century motors ideal for driving reciprocating refrigeration compressors. These motors are designed to bring heavy loads up to speed quickly, yet smoothly and quietly. They give you top performance because they exactly meet the load requirements of refrigeration compressors.

Century motors are ruggedly built, with accurately machined feet and rigid frame and end bracket construction. Carefully balanced rotors contribute to Century motors' remarkable freedom from vibration throughout their exceptionally long life.

Century builds a complete line of electric motors and generators, fractional and integral horsepower, in the popular sizes to meet the requirements of appliances, industrial production and commercial needs.

Specify Century for all your electric motor requirements.

Century C MOTORS

CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

515

Both in the same bracket!

THAWZONE PATENTED The PIONEER FLUID DEHYDRANT

TRACE REFRIGERANT LEAK DETECTOR

PARTNERS IN PURPOSE

...to keep refrigeration systems at the height of efficiency

HIGHSIDE CHEMICALS CO.

195 VERONA AVE. NEWARK 4, N. J.

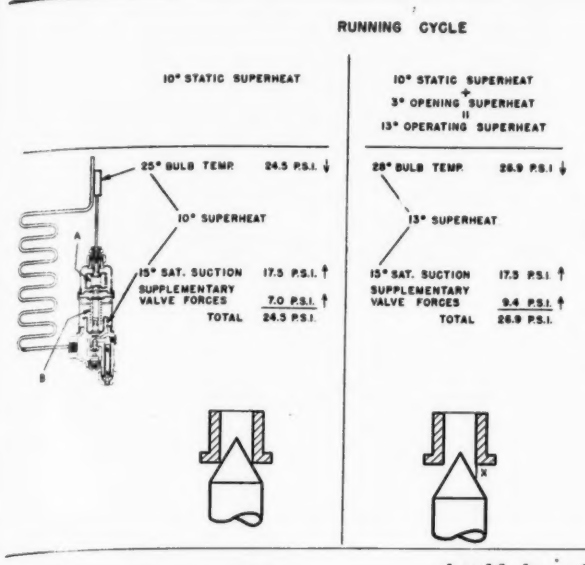


Fig. 2—With the thermostatic expansion valve, as shown at left, capacity and needle opening are related to the superheat setting.

Valve Capacity--

(Continued from preceding page)

Assume now that the suction pressure remains constant at 17½ p.s.i. while the feeler bulb temperature is suddenly increased to 28° F., thereby creating a force equivalent to 26.9 p.s.i. tending to open the valve. This force over-balances the 24½ p.s.i. closing force, so here again the valve mechanism moves toward the open needle position until the refrigerant flow through the orifice balances the compressor demand.

As the valve mechanism moves toward the open needle position the springs change their position in a way that results in an increased spring force so that by the time the needle is open the distance "X" the forces are again in balance at 26.9 p.s.i. Under this operating condition the valve is now operating at a superheat of 13°, or 3° more than the factory or static setting. This 3° is designated as the opening superheat and is the superheat change used in rating the expansion valves.

FLOW CONTROL CHARACTERISTICS

The *automatic* expansion valve is responsive to pressure only and will feed refrigerant as long as the established suction pressure allows the valve needle to open. Refer to Fig. 3.

In applying this type valve it is necessary to operate it at a suction pressure which is lower than the desired case temperature by the amount of the TD (temperature difference). In other words, if a case temperature of 10° is desired, and an evaporator is selected which will arrive at the desired condition with a 10° TD, the suction pressure should be adjusted to a saturation temperature of 0° F.

During the pull-down the temperature surrounding the evaporator is much higher than 10° and as a result the initial evaporation of liquid takes place in the front section of the coil, this being due to the high TD at which the coil is operating.

As the case temperature approaches the desired 10° F. the evaporator becomes progressively more refrigerated until finally it is completely refrigerated and any further operation would cause the refrigerant to flood over into the suction line.

In order to prevent this, it is common practice to clamp the control bulb of a temperature control to the suction line at the coil outlet. With this type of hook-up, when the evaporator becomes completely refrigerated, the thermostat acts to stop the entire unit which remains off until part of the refrigerant in the evaporator is expanded and the temperature of the evaporator increases to the next cut-in point.

During this entire operation the automatic valve responds only to the pressure and always feeds the refrigerant into the evaporator at a constant pressure regardless of the extent to which the evaporator is refrigerated.

The *thermostatic* expansion valve is responsive to both the suction pressure and the feeler bulb temperature, the feeler bulb being located at the evaporator outlet. Refer to Fig. 4.

Since the thermostatic valve is really a pressure differential valve, it will feed refrigerant whenever the feeler bulb temperature is higher than the saturation temperature in the coil by an amount equivalent to the superheat setting.

This condition might occur at a 50° suction temperature or a 0° suction temperature, but regardless of the suction temperature at which the valve is operating it will feed refrigerant when the proper difference is established. Unlike the automatic expansion valve this valve, by means of the feeler bulb located at the coil outlet, feels in a way what is going on in the evaporator and will act to automatically stop the refrigerant flow before a flood-over occurs.

This operation actually turns out to be a throttling operation whereby the evaporator is kept completely refrigerated at all times when the unit is operating.

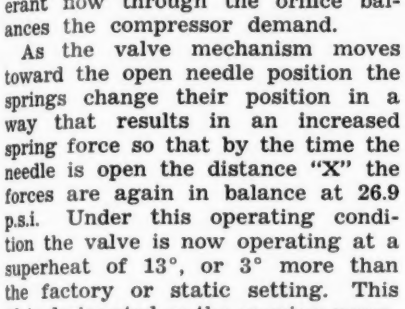


Fig. 3—The automatic expansion valve is responsive to suction pressure alone.

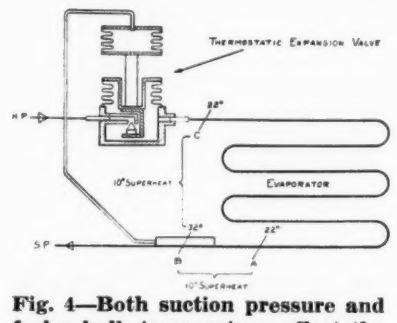


Fig. 4—Both suction pressure and feeler bulb temperature affect the thermostatic expansion valve.

Note in Fig. 4 that the valve which is adjusted to a 10° superheat actually controls the coil to a 10° superheat as shown by the difference in temperature between the points A and B at the coil outlet. Since this valve will operate at various suction pressures, the flow control characteristic becomes very important.

If superheating at the coil outlet takes place between locations A and B at 40° suction, for instance, how much superheating surface will be required when the coil is operating at a 0° temperature? It is desirable, of course, to have the same amount of superheating surface or the same distance between A and B regardless of the suction temperature.

(To Be Continued)

. . . for extra protection against leakage

IMPERIAL Triple-Seal FITTINGS

. . . The Flare Fitting with the groove in the seat

When the flare is drawn against this groove the copper tubing is extruded into the groove making a tight, self-sealing joint. Here is the joint that remains leakproof even though the face of the seat may be nicked or marred. This extra seal of safety is a plus feature that costs no more. Included in all sizes ⅜" and larger.

THE IMPERIAL BRASS MANUFACTURING COMPANY
565 South Racine Avenue • Chicago 7, Illinois

RANCO REFRIGERATION CONTROLS

Type O-1419 Commercial Control

So Easy to Install--
That's RANCO!

So Easy to Regulate--
That's RANCO!

So Accurate Always--
That's RANCO!

It's so easy to be right with Ranco Controls that service men pick them above all others.

ASK YOUR JOBBER ABOUT RANCO

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NOW THE NAME

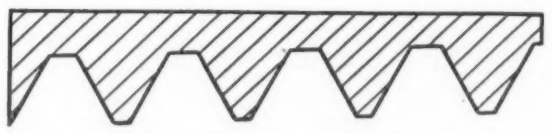
DRYSEAL

IS DOUBLY IMPORTANT TO YOU

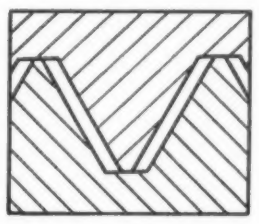
THE name Revere Dryseal on copper tube is your assurance of highest quality. Made for refrigeration, air conditioning, heat control and other services, Revere Dryseal Copper Tube is completely dehydrated during manufacture and then sealed at both ends to keep all moisture and other foreign particles out. Because Revere Dryseal is dead soft, it is ideal for installations where easy bending is necessary. It comes in sizes from ⅛" to ¾" O.D. in 50-foot coils, and is handled by leading distributors throughout the country.

More recently the name Dryseal became doubly important to you when it was selected to designate a new standard for pipe thread adopted by the Society of Automotive Engineers. It is a modification of thread form, known as Dryseal Taper Pipe Threads, which differ from the American (National) Standard in that clearance between crests and roots is eliminated. Spiral leakage is thereby prevented and the joint rendered pressure-tight without need of lubricant or sealer.

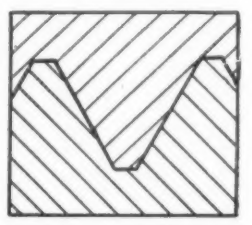
The accompanying illustrations and description of Dryseal pipe threads are presented here by Revere Copper and Brass Incorporated as a service to its customers who are not yet acquainted with this new type of pipe thread.



In Dryseal Pipe Threads the width of the crests is less than the width of the roots. This differs from the American Standard, in which truncation of crests and roots is approximately equal.



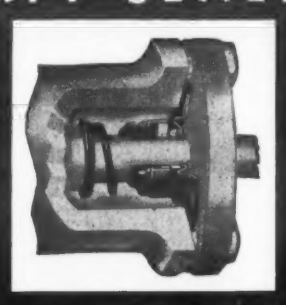
There is no spiral clearance because contact is always made between the crests and the roots of Dryseal Pipe Threads before there is engagement between the flanks.



Wrench take-up forces sides of threads to engage, completing a metal-to-metal seal which prevents spiral leakage and stays pressure-tight without lubricant or sealer.

REVERE
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, New York
Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere

SUPREME IN THE ART OF SHAFT SEALING



ROTARY SEAL REPLACEMENT UNITS
for
Refrigerator Compressors

Available for Over 752 Models of Refrigerating Assemblies.

ROTARY SEAL COMPANY
2020 N. LARRABEE ST., CHICAGO 14, ILL.
Canadian Office: 382 Victoria Ave., Montreal 6, Canada

What's New

Tyler '47 Models Have New Loading, Display Features

The 1947 Tyler meat and dairy case is marked by an increased elevation of the display area which provides better display and also makes it easier for the customer to reach the merchandise.

* * *

NILES, Mich. — The new 1947 Tyler self-service open frozen foods display case and meat and dairy case have been introduced to the trade by the Tyler Fixture Co. here.

Both cases are equipped with rear-loading features, which permits the operator to load the units without disturbing customer traffic, according to J. B. Hennion, sales promotion manager.

The frozen food case has a 9-cu. ft. open low temperature display compartment and a 19-cu. ft. storage compartment where a third of a ton of frozen foods can be kept, according to Mr. Hennion.

It is equipped with a double tier of fluorescent lights to make the frosted glass sign, "Frozen Foods," stand out. Food display and product sales panels are additional aids in attracting customers.

The frozen food case also features shatter proof glass wings at both ends to guard against drafts, a night cover of waterproof plywood with aluminum cold reflector on the under side, porcelain display compartment end liners, and "scientifically located" O-Kay plate coils.

The meat and dairy case, which is made in 12 and 8 ft. models, is is claimed to raise the whole display of merchandise higher to attract the attention of the customer more easily and make it easier for him to reach the packages.

In addition to a wide main display shelf, this case has a mezzanine shelf for extra display. This shelf can be folded flat against the rear liner when not in use. Quart milk bottles can be displayed under the mezzanine shelf, according to Mr. Hennion.

The light hood along the upper front of the case is raised slightly to provide a stop for packages displayed on the porcelain top.

The display mirror is said to be out of the refrigerated zone, thus keeping the glass free from moisture which would obscure vision.

For ease of installation and maintenance, the front panel is removable and there is a false canopy top housing the upper sales mirror.

Welding Electrode for Work with Sheet Metal

MILWAUKEE—A. O. Smith Corp. here is manufacturing a new welding electrode, the SW-16, for light welding in the sheet metal field. It is said to be particularly useful in the manufacture of refrigerators, home freezers, and air conditioning units.

The manufacturer claims it to be a high speed, heavy coated electrode for all position welding on mild steel of light gauge.

New Appliance Is Both Grill and Waffle Iron

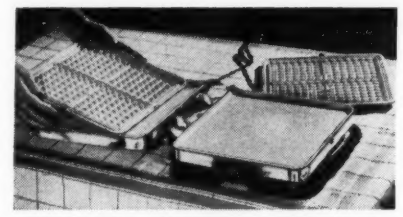
COLUMBUS, Ind. — A combined electric grill and waffle iron, providing 190 sq. in. of cooking space, has been introduced by Noblitt-Sparks Industries, Inc. here.

Known as the Arvin "Lectric Cook," the appliance can cook steaks and chops in six to 10 minutes, toast sandwiches four at a time, and, when the waffle grid plates are attached, can turn out waffles four at a time, according to the manufacturer.

The Lectric Cook is not yet available on a national scale, the manufacturer states. One market will be developed at a time until sufficient production is attained to warrant nationwide distribution, he explains.

Retail price has been established at $27.95.

The Lectric Cook features a signal light which turns on when the cord is plugged in and stays on until the heat reaches the dialed temperature indicating cooking heat. After the temperature dial is once set, this heat is maintained automatically just as in an automatic electric iron, the manufacturer says.



Combined grill and waffle iron.

A small air space beneath the lifting handle provides air cooling for greater comfort, he declares. An air space between the cooker and the plastic base is said to protect the table cloth from heat.

A protected expansion hinge allows the hinge to expand when extra thick bread or chops are cooked. The cover protects the cable from grease or harm.

A built-in drip spout takes away surplus grease when frying fatty foods.

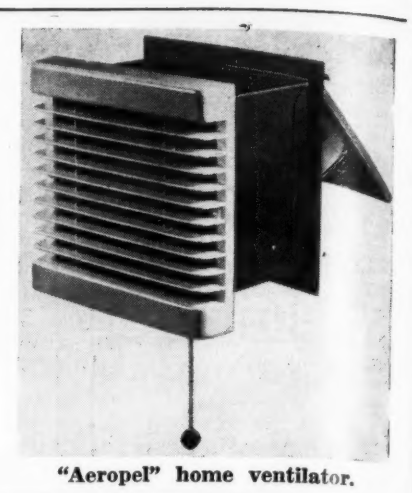
Two waffle grid plates are provided with the cooker. They can be inserted in the grill and instantly clamped securely. The grid plates contain an outer groove to catch the batter overflow.

In baking waffles, the signal light operates as described above. In addition, when the waffle batter is poured into the grid, the light goes back on and remains on until the waffles are cooked. When they are done, it goes out again.

Ventilator Has Enclosed Motor & Plastic Grille

DETROIT—American Blower Corp. here has announced the introduction of a new home ventilator, known as the Aeropel. Recommended uses are for kitchen, bathroom, nursery, laundry, or any other room where odors are present.

Many commercial uses are also pointed out, such as private offices, rest rooms, and reception rooms. Capacity of the ventilator is given by the manufacturer as 400 c.f.m. The unit may be installed in either a new construction or an old one, the manufacturer points out.



"Aeropel" home ventilator.

The fan consists of three parts—white plastic grille; tubeaxial 3-bladed fan driven by a totally enclosed, constant speed, 115 volt 60/50 cycle, single phase motor; and a fabricated steel wall box, bonderized for rust resistance, specifications indicate.

A small weather door at the rear of the wall box has an automatic latching device. The fan starts or stops automatically as the door is opened or closed.

Essick Co. Gets Okay for New Factory Building

LOS ANGELES—Essick Mfg. Co., manufacturer of evaporative coolers here, has obtained a building permit for construction of a new factory building at 2445 East Sixteenth St., Los Angeles, to be 103 x 180 feet in area, and to cost $50,000.

Permits the refrigeration system to operate at its highest possible back pressure at all times. Results in added capacity and lower operating costs. Permits 100% of the coil surface to become effective. Traps and evaporates any liquid refrigerant that may spill over from the evaporator. Prevents damage to the compresser. 1½ to 6 tons capacity. Write today.

TEMPRITE PRODUCTS CORP.
43 PIQUETTE AVE. • DETROIT 2, MICHIGAN

IMMEDIATE DELIVERY!

6 and 8 hole 30-40 gal. ice cream cabinets. Complete with ⅓ horse hermetic sealed units.

WILSON FREEZERS, INC.
837 Tilden St., New York, N. Y.
OL. 5-6905

Only COEY Cooling Towers bring you the high efficiency of

FLOATING FILM

Rogers' "COEY" Floating Film Cooling Towers apply a cooling principle widely endorsed by engineers and contractors; bring you high efficiency in cooling tower units:

HIGH CAPACITY - LOW WEIGHT
SILENT OPERATION
CONSERVES WATER - LITTLE SPRAY LOSS
ALL-METAL FIREPROOF CONSTRUCTION
EASY TO MAINTAIN

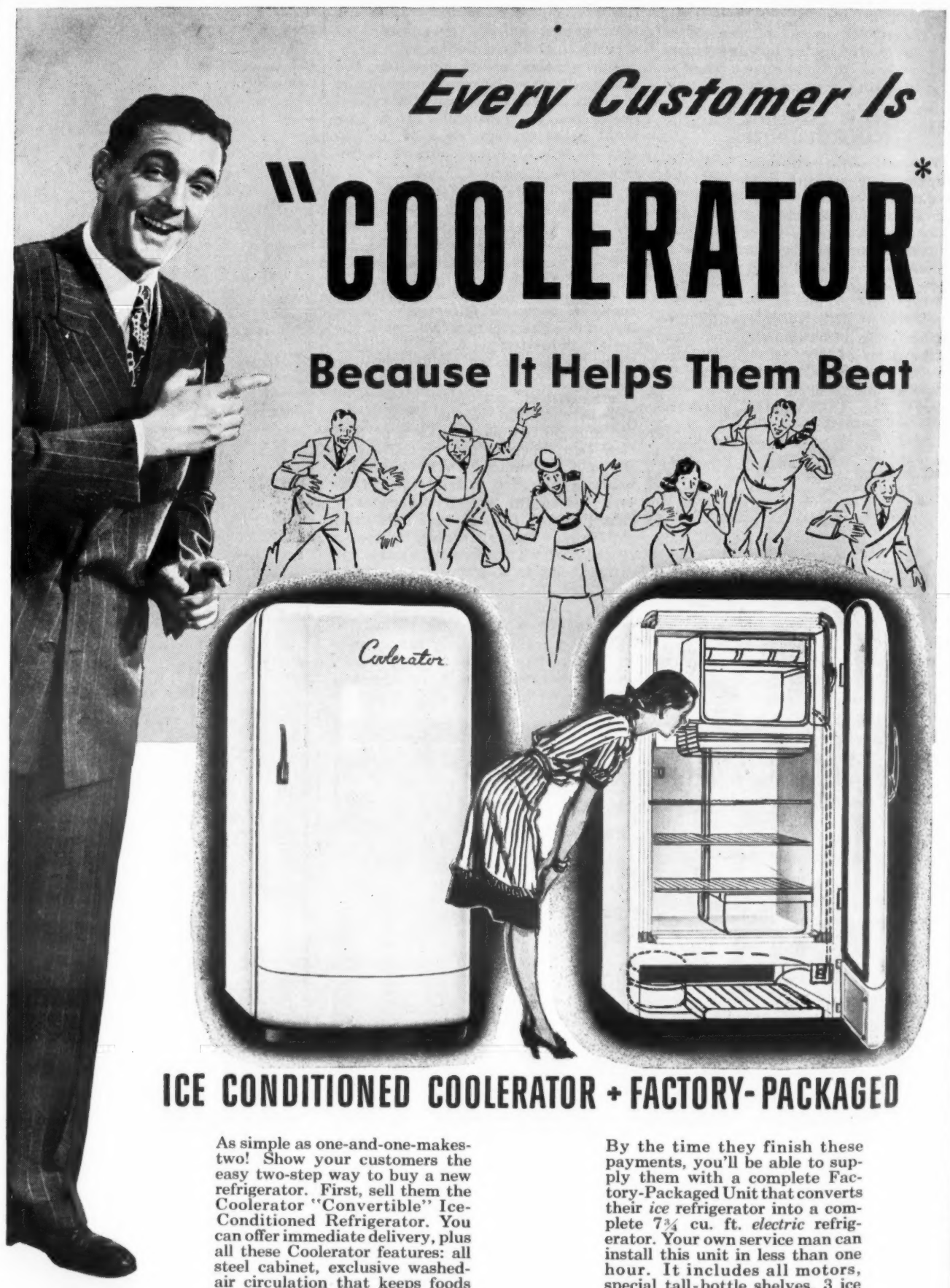
(No spray nozzles to clog; no baffles to replace)

Available in wide range of sizes. Models 20-R and 50-R (capacity range 30 to 175 tons) available for immediate shipment.

For full information including technical description, ratings, list of prominent users, write for Bulletin CT-A.

A product of

R. B. ROGERS COMPANIES, Inc.
1120 Leggett Avenue,
New York 59, New York

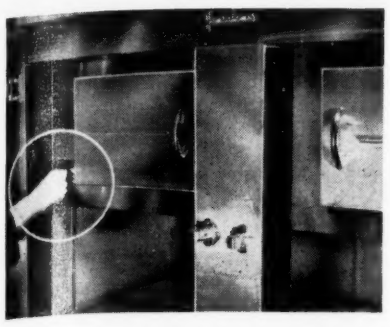


ICE CONDITIONED COOLERATOR + FACTORY-PACKAGED

As simple as one-and-one-makes-two! Show your customers the easy two-step way to buy a new refrigerator. First, sell them the Coolerator "Convertible" Ice-Conditioned Refrigerator. You can offer immediate delivery, plus all these Coolerator features: all steel cabinet, exclusive washed-air circulation that keeps foods fresh and tasty, plenty of pure, taste-free ice at all times. And, convenient time payments!

By the time they finish these payments, you'll be able to supply them with a complete Factory-Packaged Unit that converts their *ice* refrigerator into a complete 7¾ cu. ft. *electric* refrigerator. Your own service man can install this unit in less than one hour. It includes all motors, special tall-bottle shelves, 3 ice cube trays, glass defrosting tray and a 25-lb. built-in, frozen food locker!

What's New (Cont.)



Jordon two-temperature reach-in commercial refrigerator.

* * *

Jordon 2-Temp Reach-In Has 7-ft. Frozen Storage

PHILADELPHIA — A new two-temperature reach-in commercial refrigerator, providing approximately 7 cu. ft. of frozen storage space, has been introduced by the Jordon Refrigerator Co. here.

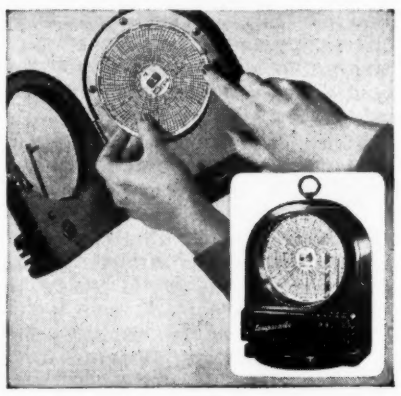
Through the development of the improved Jordon "Freezeshelf," proper temperatures in both the normal storage section and the freezer section can be maintained by one control, the company claims. The "Freezeshelf" needs no defrosting.

The "Tu-Temp" feature is available at present in the 42 cu. ft. reach-in refrigerator and will be in production shortly in the self-contained 37 cu. ft. model, according to Jordon.

Bacharach Device Records Operation or Temparature

PITTSBURGH—A Tempscribe recorder that is interchangeable as a temperature or operation recorder, by installation in the door of either a bi-metallic temperature element or an actuating mechanism, has been developed by the Bacharach Industrial Instrument Co. here.

This instrument, says the company, was designed primarily for use as a portable field service instrument for use in obtaining a picture of the operation and performance of air conditioning, space cooling, and heating devices and systems.



Bacharach Tempscribe recorder.

In addition, it is claimed that Tempscribe instruments set for operation recording are suitable for recording the flow of current through any electrical device such as a motor, fan, lamp, or sign; while instru-

Removal of the door for conversion of the recorder from one function to the other only requires lifting out the locking pin from the piano-type hinge, it is claimed. The clock movement is in the body of the instrument.

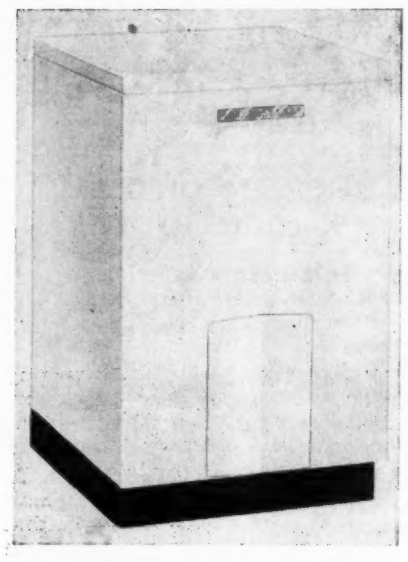
When the door is opened, the pen swings out of the way, permitting a clear, unobstructed view of the complete record, plus easy chart replacement without danger of damaging the pen mechanism, says the company.

Compact and self-contained, the Tempscribe instrument fits into a space 4½ in. x 5½ in. x 7½ in. A recess in the back of the recorder is said to hold extra charts and an ink bottle with a glass dropper. The recorder is so designed that it can be hung flush against a wall suspended by the ring hook.

Charts used in the recording of temperature show the highest and lowest temperature during the test period, duration of any temperature extreme, and spread and frequency of temperature variation, it is said.

Charts used with operation recording show starting and stopping time of the motor, intervals of cycling, and record of running time. This indicates the capacity of the system utilized during the test period.

The Tempscribe temperature recorder is available in the following standard time-temperature ranges: 24 hours, -10 to 50° F.; 24 hours, 30 to 60° F.; 24 hours, 40 to 100° F.; 24 hours, 70 to 130° F.; 24 hours, 60 to 90° F.; and eight hours, 60 to 90° F.



Westinghouse 40-gal. automatic electric water heater.

* * *

Westinghouse Introduces Table-Top Water Heater

PITTSBURGH — Westinghouse Electric Corp. has introduced a new table-top, 40-gal. automatic electric water heater, which provides 4 sq. ft. of porcelain enameled work surface.

The new unit, which can replace a 24-in. base cabinet in the kitchen, features an accurate thermostat with an adjustment range of 120° to 170°; an immersion type heating element; Fiberglas insulation; and a scientifically designed cold water baffle, according to the manufacturer's specifications.

Compound Leverage Used In New Flare Nut Wrench

LAMBERTVILLE, N. J. — Logan Tools, Inc. here is manufacturing a racheting flare nut wrench, said to operate on a new principle of compound leverage. According to the manufacturer, this wrench is particularly adaptable for use on "tough nuts."

Double broaching of the jaws is said to permit operation within a 30° arc.

Chief advantages of the wrench, as cited by the company, are: it ratches, provides double action leverage, has short handle movement, gives positive grip on rounded-off or undersized nuts, and jaw movement is controlled with thumb pressure from the handle.

Other Items Shown At FF Show

First Self-Service Cabinet Exhibited by Goodsell Corp.

The first self-service cabinet made by Goodsell Corp. went on display at the Exposition. The condensing unit is on top of the cabinet fronted by 18 price and brand strips. Alongside of the unit is an illuminated display case whose floor is a cold plate flush with the product top.

Stainless steel sliding doors permit easy access to the cabinet which is of 21-cu. ft. capacity. The box features 4 to 6-in. insulation throughout. Hal H. Paltridge, general manager, announced the list price to be $898 with 30 day delivery.

Also on display was the standard Goodsell frozen food cabinet with the rear door access.

Haldorf Cabinet Compressor May Be Contained or Remote

Economy of initial cost and operation is stressed in the new Haldorf self-service cabinet with an 18-cu. ft. capacity. It may be operated with the sliding "Twindow" glass panels or as an open top box.

A hermetically-sealed ⅓-hp. compressor may be either contained or remote, depending on the model chosen. The Haldorf features direct expansion refrigeration with each liner wrapped with one continuous length of copper tubing formed in hairpin coils soldered their entire length.

For defrosting, a scraper or stiff brush is used once a week when the unit is operated without lids and once a month if the lids are used continually. The self-contained three-panelled model sells for $1,005 while the remote-type model lists at $961.

'Packaged Cold' Sawdust Aids Shipment of Perishable Food

The latest development in packaged refrigeration was given its first public showing at the Exposition. Used for shipping perishable commodities, Super-Ice is a chemically-impregnated sawdust packaged in 1¼ pound boxes and kept dry until desired for use.

To use, the package is placed in water to activate the chemical, then drained and then sharp frozen. The block then weighs about 4½ pounds. It will absorb heat for as long as 24 hours in ordinary room temperature, according to the designers.

Will Evans, president, stated that the formula may be altered at the laboratory to provide temperatures best suited for particular perishables. He disclosed each unit sold for about 20 cents, scaling down to 13 cents.

EQUIPMENT FOR SALE

Air conditioning units consisting of ½ hp Bishop-Babcock Compressor Body made for B & B by Servel Refrigerator Co.

1 16" X 24" Kramer Double row condenser.

1 3½" X 14" heavy duty receiver with safety plug and test cock with approximately 5 lbs. of "Freon."

1 Detroit Lubricator 2 ton Expansion valve.

1 Peerless Thermac evaporator blower unit cooler 12" X 24" X 6".

10 ft. each of ⅝" and ½" tubing with vibrator eliminator attached.

Compressor body base attachable to automobile motors.

Also 60 other items including bolts, nuts, bases, and brackets.

These units were built for Chrysler Corp. to condition their Chrysler cars.

All the above equipment is new. Cost approximately $300.00. Our prices $70.00 F.O.B.

These units are knocked down in shipping crates weighing approximately 200 lbs.

GEORGE SPECTOR
CA 5125
675 Gratiot Ave., Detroit, Michigan

A Prospect For The

CONVERTIBLE"

High Refrigerator Prices!

A "NATURAL" FOR EXTRA PROFITS

TIME PAYMENTS TWICE-AS-EASY THIS NEW 2-STEP WAY!

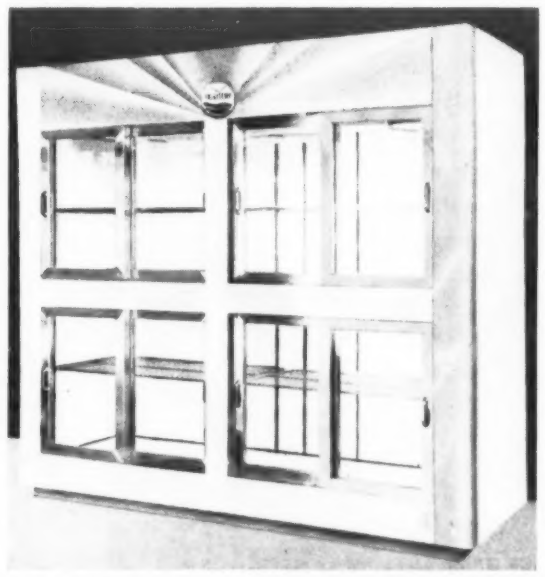
Your customers are going to like this! And why not, when you show them this *easy* way to pay for their new refrigerator? For their original investment on the Ice-Conditioned Refrigerator is approximately $90.00, and you can arrange easy time payments for this. Then, when they buy the Factory-Packaged Unit, you can arrange *new* time payments for the conversion to an electric refrigerator. This way, the time payments are spread out twice as long—twice as easy to pay! This is how you can help your customers beat high refrigerator prices.

REFRIGERATOR UNIT = A WONDERFUL ELECTRIC REFRIGERATOR!

And there it is! A big, beautiful, 7¾ cu. ft. electric refrigerator. It's the newest thing on how-to-win-customers and sell-more-refrigerators. In addition, you can now sell this electric model complete. It's the DR-70—another profit getter!

Coolerator*
Flavor Saver
*T. M. Reg. U. S. Pat. Off.
REFRIGERATORS AND FREEZERS
THE COOLERATOR COMPANY
DULUTH 1, MINNESOTA
Manufacturers of Ice and Electric Refrigerators, Home and Farm Freezers

ALL VISION BEVERAGE BOX



MODEL DDS-8 Beautiful, heavy stainless steel front, with sunbeam effect across top, 8 double glazed, stainless steel doors on rollers (4 on bottom, 4 on top). Calcium Chloride moisture absorption in doors. White porcelain interior, each porcelain section gasketed for extra protection. Overhead coils, and aluminum pan. "Built-in" concealed, drain. Adjustable wire shelves. 4" of efficient insulation. Fluorescent lighting. An ideal pastry wall box, or dairy box. L 96", W 30", H 80". Minor changes can be made to suit your special requirements. This unit can be "custom-built" to size, from 4 to 12 ft. in length. Inquire storage boxes, display cases, reach-ins, ice cream cabinets, freezers, dough retarders, bobtail fountains, etc. Equipment made to your special order. Send sketch for quotation.

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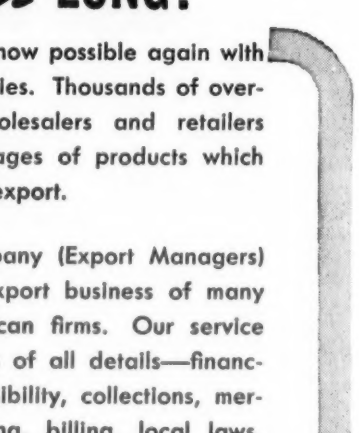

esse quam videri
"to be, rather than to seem"
ACCREYLON COMPANY, INC.

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Dept. R-4
130 WEST 42ND STREET, NEW YORK 18, N. Y.

OFF THE CHEST

EX-EUROPEAN OPPOSES U. S. LOAN TO BALKANS

American Freezer Co.
229 Flatbush Ave.
Brooklyn, N. Y.

Editor:

I take great pleasure in writing you and telling you that I look forward to reading your column in the NEWS.

Your "Inside Dope" of March 24 topped everything that you have written so far. I must warn you that you took your reputation and flung it to the wolves when you warned us against sending our dollars to Greece and Turkey. You may now be accused as a pink or a fellow traveler, or perhaps accused of being in cahoots with Stalin himself.

How right you are in your predictions. If we should fork over that four hundred million, the rest of the European countries will start their cry, "Save us from Communism with your other millions." Then the fun will begin. The South American countries will start asking for millions. But we will not give any to them. Our diplomats will feel that we can use the Marines to cope with that situation.

But if we use the Marines, Russia will put up the cry, "Reactionaries, Fascists—you are enslaving the South American working classes." Then Stalin will be able to tell the European people, "I told you so."

Having been born in the Balkans, I came here at the age of 14. I am mature enough to know the score. I want to support you in your suggestion that we save our dollars and prepare ourselves. Now is the time for us to wake up and see that Europe will not pull itself out of its misery as long as we will pour our hard-earned money into it on technical blackmail.

For almost a century, those people have been under the impression that money in this country is as easy to get as raking up the leaves in the Fall. They look upon us with greedy eyes, and when we give them something, we haven't given enough, and when we stop giving we are well-fed inhuman beings. If we should ask them for the money we loaned them, then we are tyrants.

As for teaching them democracy, the only way they can be taught democracy, is by bringing them here one at a time. Here they mix with the rest of the people, adopt our habits and learn how liberty should be practiced. Even some Russian officials learned real democracy here, repudiated their government and got asylum in the United States.

I am sending your article to my two senators and congressman, so that they can digest what you say. Maybe they will wake up and see the foolish hysteria gripping the country.

And last I want to say that in my opinion we have very little to fear from Communism. In this country it is pretty well under control. It has made less progress since 1938 than it did from 1928. The people here have a pretty good idea of what we stand to lose under Communism.

S. LEBOWITZ

MAIL FOR CONGRESS

Engineering Service, Inc.
Cleveland, Ohio

Editor:

Permit me to compliment you on your "Inside Dope" series in recent issues.

Wonder if you could spare a half dozen (March 24 issue) so I can send them to my senators and congressmen at Washington?

JAMES MURPHY,
Assistant Treasurer

A KICK IN TIME . . .

P. O. Box 1500
Orlando, Fla.

Editor:

I certainly got a kick out of the editorial in the Feb. 17 issue of the NEWS; those are my sentiments exactly.

DANNER BIERHAUS

CORRECTION: RIGIDBILT SITE IS 129 X 175 FT.

Rigidbilt, Inc.
2505 S. Pulaski Road
Chicago, Ill.

Editor:

Please refer to the story in your March 17 issue under the headline "Bradfield Buys Chicago Site, May Erect Plant Soon."

You can imagine our disappointment in reading this when we tell you that the site we purchased is 129 by 175 ft. (not 129 x 75 as the story had it) and if our mathematics are correct this is 22,575 sq. ft. and expressed in acreage is a little more than half an acre.

WM. W. BRADFIELD

SOUND LOGIC NEEDED

Drug Vitamin and Allied Industries
1070 Spring St., N. W.
Atlanta, Ga.
March 28, 1947

Editor:

You're doing a fine and truly patriotic job in "Inside Dope" consistently. In March 24 issue you displayed the stature of a *true* Statesman!

If only our politicians and our businessmen could be brought to forget their *immediate* "objectives" long enough to apply the sound logic you have applied to facts available to all thinking people, the future of this nation and all the world would be brighter.

With genuine appreciation, I am

O. J. WILLOUGHBY

3,000 REFRIGERATORS FIXED IN 13 MONTHS

Bldg. 128
Fort Sam Houston, Tex.

Editor:

I took the time to inscribe this communication to you to compliment your discrimination in selecting to reprint the Maurice L. Franks advertisement. That paragraph beginning "There is in fact, no single answer to the labor problem, and for the very simple reason that there is no single cause," is *real* writing. The manifestation of the *ruler* complex is apparently a trait of any individual who is given the opportunity.

Also, I wanted to tell you that I have been with the 4th Army Engineer for some time, as head of the Refrigeration and Ventilation Branch. One of the accomplishments of which I am, I hope pardonably, proud, is the task performed by our San Antonio General Depot Mess Equipment and Refrigerator Repair Shop. During the 13 months' period ending 31 January, 1947, this shop has processed approximately 3,000 mess hall refrigerators (most of them 65-cu. ft. boxes) for shipment to overseas installations. The total cost of labor and materials for this job was less than $45,000. Cost of packing and crating was probably about the same amount.

These refrigerators all came in from surplus posts and camps in what were formerly the 8th and 9th Service Commands, and, but for the repair program, would probably have been sold for a fraction of their value. As it is, we have made available nearly $1,200,000 in refrigerators without taking anything from the civilian markets.

L. J. VAN SICKLE

LETTER WINS BUSINESS FOR INDIAN COMPANY

Ghulam Nabi Corp., Ltd.
42, The Mall
Lahore, Ind.

Editor:

I am much obliged to you for publishing my letter of Sept. 3 in your paper.

It has evoked a very good response, and we have received very interesting offers from manufacturers and dealers in the States, some of which may result in mutually beneficial business dealings.

W. L. ORTHEILER,
General Manager

SYRIAN FIRM ASKS AIR CONDITIONING SYSTEM

Teleg. MEZA
Damascus, Syria
Feb. 14, 1947

Dear Sirs:

We own in Damascus a large weaving manufacture and we would like to install a modern heating system in this mill.

We have come to the conclusion that air conditioning would be best, inasmuch as we would have hot air in winter and cold in summer.

Would you be so kind as to send us the address of an American firm capable of furnishing complete installation. We will send them the plan of our mill and they in return may send the estimate.

Thanking you in advance, we extend our most distinguished salutations.

ANTOUNE E. MEZANNAR

VETERAN IN INDUSTRY CALLS DIRECTORY 'BEST'

Rowles Sales Co.
101 W. Pecan St.
San Antonio, Tex.

Editor:

We have just received a copy of the *1946 Refrigeration and Air Conditioning Directory*. George, you and your organization are to be congratulated on the completeness of this directory. It seems to be boiled down with more information than any publication I have ever seen in the industry, and as you know I have been in the industry for 29 years.

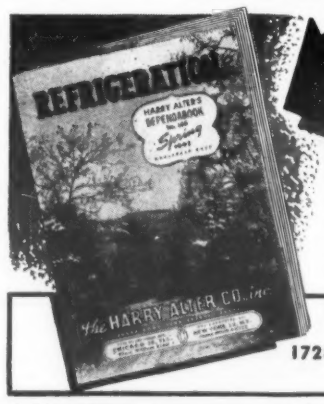
W. C. ROWLES

Dr. Pepper Co.
P. O. Box 5086
Dallas 2, Tex.

Editor:

You certainly offer to the refrigeration industry a great service in your timely publication, and your untiring efforts I know are greatly appreciated by all in the entire industry.

WILLIAM E. ANGLIN



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Concealed freezer coils—built into walls no blower—no fin coil to take up valuable space.
Uniform temperature throughout
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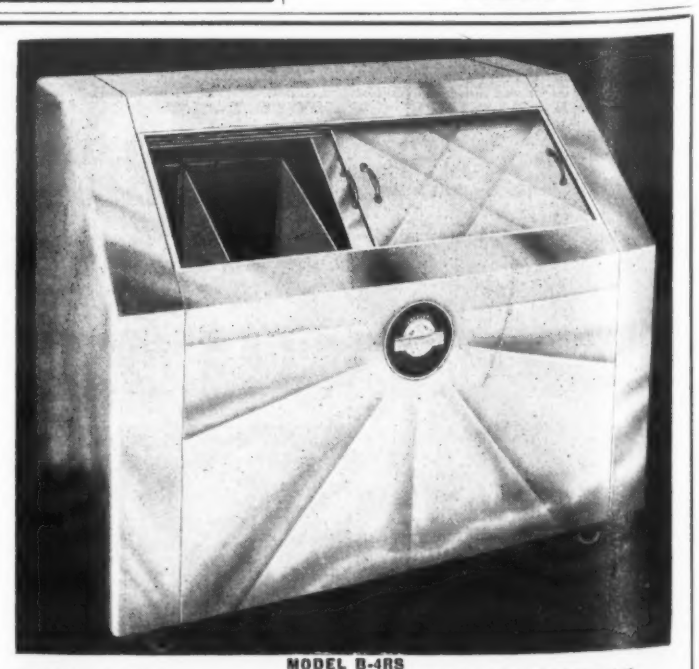
Attractive modern design for fast, speedy service
Economical and dependable—low cost operating.
Easy to clean inside and out.
And yet, with all these dynamic sales features this different Delaware Freezero Beverage cooler is no higher in price than the average cooler.
Write today—don't delay franchises for distributors and dealers. Profit with DELAWARE FREEZERO PRODUCTS.
Each product built is the greatest value in the field.



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OUR 17th ANNIVERSARY

Here's How Package Conditioner Installations Can Be 'Camouflaged'

Contractor Blends Units Into Their Surroundings

By C. Dale Mericle

LANSING, Mich.—Installation of package air conditioners so they will blend in perfectly with the decorative motif of stores and bars is one of the specialties of Hager-Fox Heating & Refrigeration Co., dealer-distributor for Chrysler Airtemp here.

The air conditioning business is booming just now in Michigan's capital city, reports E. C. Fox, manager of the firm. This is partly a seasonal boom, but there's another factor, too. At last November's election, Lansing voters decided by a narrow margin to allow sales of liquor by the glass. Just recently several liquor licenses were granted to restaurant operators and others who are now busily setting up barrooms, many of which will be air conditioned.

One of these is the Famous Cocktail Lounge on W. Michigan Ave. here, in which Hager-Fox has installed a 5-hp. Airtemp conditioner equipped with steam coils to supply either heating or cooling on a year-around basis. This installation in the 20 ft. by 50 ft. lounge has some interesting features.

Vestibule Supplies Air

The conditioner itself is placed in one corner of the street end of the room, the back of the unit adjoining the small vestibule entrance which measures about 8 ft. by 4 ft. This arrangement makes it possible to use the vestibule as a source of make-up air. Delivering 2,000 c.f.m., the conditioner uses 50% fresh air from the vestibule and 50% recirculated air.

Paint used on the conditioner is of the same color value as that on the walls of the lounge so that the unit blends nicely with the walls and is inconspicuous. Most of the cooled or heated air is introduced into the space through the discharge grille at the top of the conditioner. This grille, designed by Mr. Fox and made at the shop of Hager-Fox, has both horizontal and vertical louvers with ¾ in. spacing.

Two other ceiling type outlet grilles are supplied by the conditioner. One is located over the door leading from the vestibule to the bar, and the other is above the bay at the front of the lounge alongside the vestibule. These are connected to a common duct running from the conditioner.

Most of the heating and cooling load in this bar will be at the front, which faces south and can expect a considerable amount of sun load, points out Mr. Fox. Pulling air into the conditioner from the vestibule will help considerably in cutting the infiltration of either warm or cold air through the doors, he also believes.

How Controls Function

Control of this conditioner differs in some respects from the usual installation. The air supply fan runs constantly, whether the unit is on the cooling cycle, heating cycle, or neither. If both heating and cooling are off, the fan supplies ventilation.

Automatic selection of the cooling, heating, or off cycles is controlled by a Barber-Colman Microtherm thermostat mounted on the wall behind the bar which operates in conjunction with a modulating steam valve.

When this thermostat calls for heat the steam valve is opened wide, supplying steam to the two-row steam coil in the conditioner. As the temperature in the conditioned space rises, the needle of the steam valve begins to close, shutting off the steam completely when the pre-selected temperature on the thermostat is reached.

If the temperature continues to rise above this point, however, the needle of the steam valve will continue to travel in the same direction for another ⅛ in. This needle is connected to an auxiliary cam that trips after this additional ⅛ in. travel and cuts in the condensing unit of the conditioner, which supplies a four-row cooling coil.

This process is reversed if the lounge becomes too cold.

In addition to this automatically controlled heating-cooling conditioner, Hager-Fox has incorporated a manually controlled air exhaust system for the lounge. There are also separate positive exhaust fans for the toilets at the rear of the bar.

Two Connor adjustable Kno-Draft air diffusers are installed in the ceiling of the lounge to serve as intakes for the exhaust system. These are connected to a common duct leading to dual fans driven by a single ½ hp. motor. This system can exhaust 2,000 c.f.m. or 1,000 c.f.m. as selected by the bartender. The latter flips a switch to start the exhaust fan if the air becomes smokey or too "close." If he thinks the full 2,000 c.f.m. exhaust is too much, he merely flips another switch which actuates a Minneapolis-Honeywell motor control to close the outlet damper on one of the two fans.

Permitting the blowers to run with the damper closed on one fan outlet does not interfere with the operation of the fan motor, says Mr. Fox, nor does it mean a waste of power. With the damper shut, the one fan merely churns the air, and the power required is almost negligible, according to Mr. Fox.

Unit Is Inconspicuous

Another installation in Lansing in which Mr. Fox takes pride is a 5-hp. conditioner in the Richman Bros. clothing store. A display rack runs along one side of the store for the entire length, and in about the middle of this is the conditioner, the front being flush with the rack.

At a height of about 7 ft., air outlet grilles are located atop the rack, blending in the overall design. These are connected to the conditioner by a duct concealed above the rack. This arrangement makes the conditioner itself and the air supply system quite inconspicuous.

Mr. Fox is obviously thoroughly experienced in the air conditioning field, as these jobs and others, such as a laboratory installation at the Michigan State Department of Health holding temperatures to within 0.3° F., indicate. Much of his experience has been with Chrysler Airtemp, both as a factory representative and with dealers and distributors.

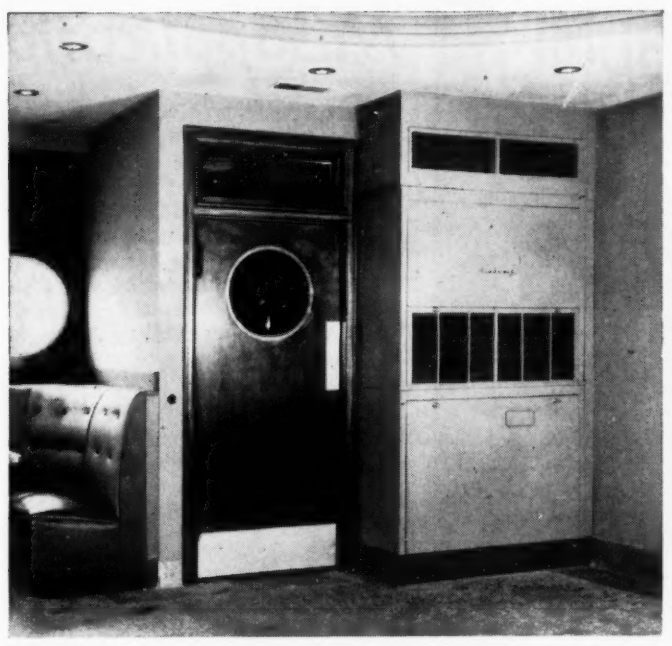
The Hager-Fox Heating & Refrigeration Co. was organized under that name a few months ago and has the use of shop facilities of the Hager-Cove Lumber Co., which includes extensive wood and sheet metal working facilities.

Sixteen service and installation men are employed by the firm, half of these being war veterans under the G.I. training program, according to Mr. Fox. Classes in heating and refrigeration are conducted for these newcomers to the field on Tuesday nights, and on Saturdays the men go out on field trips to examine various installations the firm has made or is then making.

As trainees Mr. Fox generally prefers men who have had a little more than the usual mechanical ability, and it helps a great deal if they've had training in high school drafting.

"To help them learn the tricks of this business quickly, we let these trainees lay out the ductwork on the heating jobs they're installing themselves," he adds. "We look the drawings over to correct obvious mistakes in sizing of ducts and placement of the equipment, but the rest of it is up to the boys.

"When they start running the ducts according to their own drawings, they usually find they've made mistakes in their measurements. They have to correct these errors on the job. This way they learn quite rapidly," declared Mr. Fox.



Photos by E. P. R. Boynton

This black-and-white halftone doesn't do justice to the conditioner at the left which was installed in a Lansing, Mich., bar by Hager-Fox Heating & Refrigeration Co., for the unit is painted the same rich green as the walls, letting the conditioner "flow" (as the artists say) into structure. Conditioner at right is flush with display rack in a clothing store, ductwork being concealed behind top of the rack leading to several outlet grilles as shown in upper left corner.

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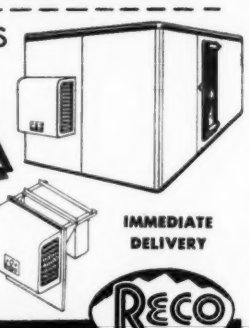

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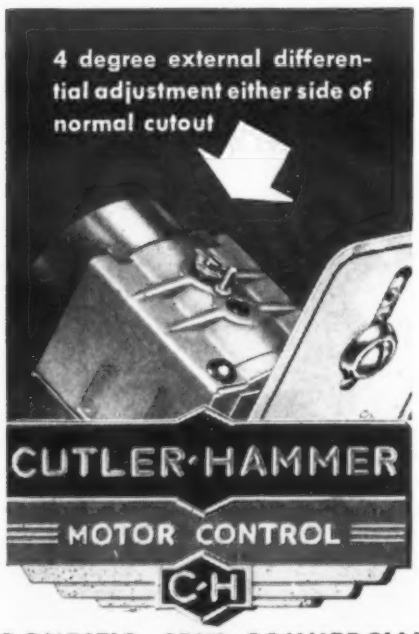
CUTLER-HAMMER, Inc., 1362 St. Paul Ave., Milwaukee 1, Wis.



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Minimum Mounting Centers 2-3/16

Adjustable Cutout Feature—Differential can be increased 4 degrees by turning indicator in "Hi" direction and decreased 4 degrees by turning in "Lo" direction.

Adjustable Range—Turning screw clockwise lowers settings and counter-clockwise raises settings.

Operating knob can be adjusted to meet various evaporator scale settings. New knob is ideal for varying shield thicknesses. Makes *this* control adaptable to wider range of single dial replacement jobs where overload is not required in unit.

DOMESTIC, SEMI-COMMERCIAL AND COMMERCIAL CONTROL

Lubrication Troubles More Often Result From Misapplication Than Faulty Oil, Eagleson Says

PHILADELPHIA — Some curious actions of lubricating oils that follow the conscientious refrigeration servicemen to bed at night were described recently by John R. Eagleson, assistant to the chief engineer of American Stores Co. here. Speaking to a record gathering of the Philadelphia section of the American Society of Refrigerating Engineers, in a "Lubricants and Lubrication Symposium," Mr. Eagleson asserted:

"Everything else in the refrigerating system has a comparatively simple chemical formula and is reasonably pure and stable. When oil is introduced into the system, anything can happen and often does.

"The average man in the field knows what general characteristics are required of a refrigeration oil.

"1. It must retain its proper viscosity at both condensing and evaporating temperatures.

"2. It must not break down chemically or physically at condensing or evaporating temperatures.

"3. It must retain its proper viscosity in various mixtures with refrigerants.

"4. It must be nearly moisture-free.

"5. It must not sludge if it comes in contact with small quantities of moisture.

"6. It must not react chemically with either the metallic parts of the system or the refrigerant.

"7. It must not form a coating on the inside of either the evaporator or the condenser.

"8. It must have extremely long life.

"The question that naturally follows is: How is the man in the field going to get this fine oil? Is he going to set up a laboratory and test it for these characteristics?

"He wouldn't know how to test it even if he had the facilities. He must rely on the experts who are devoting their lives to such problems, to produce the proper oil for his requirements.

Reputation Counts

"He selects his oil by the reputation of and his past experience with the manufacturer and distributor. This system, while not infallible, is certainly the most intelligent approach to the problem.

"With a total of more than 5,500 tons of refrigerating equipment in operation, I believe the fact that we haven't had more than a dozen serious oil problems develop in the past 10 years indicates that the manufacturers and their research men are carrying their share of the burden.

"Most of the problems that have developed were not due to any fault of the oil itself, but rather to the fact that refrigeration oil has a great wanderlust and occasionally leaves the crankcase in search of greener pastures.

"The oil manufacturers don't generally consider this as their responsibility and rightly so.

"One of our troubles has developed through the use of header type 'Freon' evaporator coils. Oil has a tendency to separate in these coils and lie there indefinitely since there is no positive flushing action through the coil.

"We have reasons to believe that certain oils and certain drying agents are not compatible, even though they may be perfectly harmless when not brought together.

"We have found, however, that a silica gel cartridge installed in a 'Freon-12' system permanently not only does an excellent job of dehydrating the system but actually helps the oil by continually filtering it.

"Modern high speed machines with small crankcases are a constant source of worry to us. In a sealed well-balanced system, high speed creates no particular problem, but in the average commercial system, the load is far from constant and the chance of refrigerant flooding the crankcase is multiplied by the number of low sides on the system.

Compressor Rendered Junk

"The oil leaves these crankcases very rapidly. Either through refrigerant dilution or disappearance of the oil altogether, the compressor quickly becomes junk.

"I would like to describe a few of the phenomena that we have run across in our operations.

"In one of our plants we have an ammonia system consisting of three 6½ x 6½ in. compressors refrigerating space ranging from butter storage rooms at 10° F. to banana ripening rooms at 72° F.

"Several years ago we replaced the original overloaded counterflow condensers, cooled by water from the cooling tower with two evaporative condensers, each with enough capacity to operate the entire plant.

"Immediately after this changeover, a great deal of sludge developed through the entire system. Previous to this time, there had been no sludge, but there had been carbonization in the cylinder heads.

"The carbonization stopped but the sludge condition became so serious that we changed to another brand of oil. When the change was made, the trouble disappeared.

"Apparently before we changed our condensers, the lighter ends of the oil had been carbonizing on the cylinder heads. After the new condensers, having ample capacity, were installed, our condensing temperature was reduced about 50° F. These lighter ends remained in the oil and went through the system to form sludge.

"Some time ago, we had a 2-hp. 'Freon' condensing unit stick tight for no apparent reason. Our serviceman freed the compressor by removing the head and valve plate, pouring oil into the cylinders, which were bone dry, and finally turning the compressor by means of a crowbar.

"As soon as the pistons came loose, the machine ran quite freely. The oil was changed and the entire system checked, but nothing out of the ordinary was found.

"Several months later, the same trouble occurred and was corrected in the same manner. Again, about six months later, the compressor stuck for the third time, but again it was freed and put in good working order.

"The serviceman was confused, but he did the only thing that he had not done before, which was to change all the expansion valves on the system. He had hesitated to do this at first, as it was a multiple system with seven thermostatic expansion valves.

"The serviceman's theory was that one of the valves was occasionally flooding and diluting the oil in the cylinders to such an extent that it lost its lubricating property.

"Not at any time did he see the valves acting erratically, but there was nothing left for him to do but to change them. The compressor never stuck again, so apparently, the serviceman's theory was correct.

"One of our bakeries had a rather odd combination of controls that

(Concluded on next page)

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USE CHICAGO SEALS and VALVE PLATES

Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.
Only Chicago valve plates have replaceable seats.
PERFECT BALANCE
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Two Outstanding Names in Refrigeration

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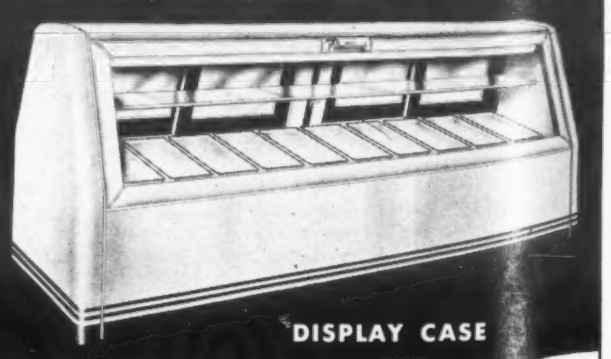

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Reach-In Refrigerators.
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High Market Walk-Ins . . .
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Fleetwood-Airflow INC. WILKES-BARRE, PA.

CUSTOM-BUILT EQUIPMENT THAT SETS THE NATION'S STANDARDS

Examples of Erratic Oil Performance In System Cited by Eagleson In ASRE Talk

(Concluded from preceding page)

caused two compressor wrecks before we realized what the trouble was. There was an ingredient room and a water cooler operated by one 10-hp. high speed ammonia compressor.

"The flow of refrigerant to the ingredient room was controlled by a constant pressure valve. A room thermostat operated a solenoid and the machine. The water cooler had a thermostatic expansion valve with a solenoid ahead of it.

"A thermostat in the water controlled the solenoid and the machine. Twice we had to have the machine rebuilt and then we replaced the constant pressure valve on the ingredient room with a thermostatic expansion valve.

"Our trouble had been that no matter where the constant pressure valve was set, it couldn't balance the system for the different conditions depending on whether the water cooler was running or shut down. When the water cooler shut down, the ammonia came back to the compressor from the ingredient room and the oil left.

"Our mechanic, on a regular inspection of an ammonia machine, found about an inch of foam on top of the oil. He hadn't the faintest idea where the foam came from but he knew it didn't belong there.

"He drained the crankcase and put new oil in from a drum kept on the job. Two days later he returned to check and found the inch of suds was there again.

"He repeated his former operation of replacing the oil with more oil from the same drum. After this, no more trouble developed.

Still a Mystery

"It seems likely that a certain amount of moisture had gotten into the original charge of oil, causing it to foam, but why one change of oil did no good at all, and the second change cured the trouble completely, is *still* a mystery to me.

"A few years ago, about two-thirds of a certain manufacturer's compressors were giving us trouble by sticking in the first 24 hours of operation. If they got through the first 24 hours, they rarely stuck at all. Very few of these compressors, when released, ever stuck again.

"The manufacturer was called in and gave us several reasons why the compressors could have been sticking, but nothing we did seemed to help the situation. Eventually the trouble stopped, apparently of its own accord.

"It is my belief, although I am not sure, that the manufacturer was using a super-refined white oil and finally changed over to an amber oil, at which time our troubles stopped.

"We were using a drying agent in these systems which was apparently setting up a chemical reaction with this white oil. In one of our other zones, where we were using silica gel cartridges instead of the liquid drying agent, we had no stuck compressors.

"We are receiving compressors at the present time, from a certain manufacturer, that have misled our servicemen on several occasions.

"Coming on the job, they have found a small leak in the system and the compressor low in oil. They have repaired the leak, added 'Freon,' and have brought the oil up to the recommended level.

"Shortly thereafter, the compressors broke their valves and gave our store personnel quite a fright. When the servicemen rechecked the oil they found it to be considerably above the recommended level.

Oil Remained In Coil

"Apparently, as the 'Freon' in the system got low, the oil was carried up into the coil and because of the lack of turbulence, the oil stayed up in the coil.

"After the serviceman replaced the 'Freon,' the oil worked back down again into the compressor and caused the damage to the valves. The compressor had a too critical oil level and a couple of ounces one way or the other will cause either bearing trouble or oil slugging.

"Our worst compressor wreck was caused by the simplest mistake. The largest machine we own, a 400-hp. horizontal double-acting compound ammonia compressor was nearly ruined a few years ago.

"The cylinders were badly scored, all the valve springs and discs were broken, and all internal lubricated parts were badly damaged.

"This all happened in the middle of a hot July, and we devoted all our efforts to putting the machine back in operation rather than to figuring out what had happened.

"But when the smoke had cleared, we found that our oil supplier had delivered to us a barrel of ordinary machine oil in a regular refrigeration oil barrel. This was undoubtedly a mistake of some underling in the company's packaging department. But needless to say, we never purchased any more ammonia oil from this company.

"From the nature of the problems that develop in the fields, it can be seen that our concern over oil has not so much to do with 'What is it?' as it has with 'Where is it?'

"It is very rarely that the recognized oil manufacturers fail to meet the specifications mentioned previously in this paper. When trouble does occur along this line, it is more often due to misapplication than to faulty oil.

"As far as we know, the life of these oils is practically indefinite. We change oil in ammonia machines annually just to make it routine.

"'Freon' oil we change only when it shows signs of deterioration. Some of our 'Freon' oil has been operating for eight to 10 years, and shows no indication that it is going to break down.

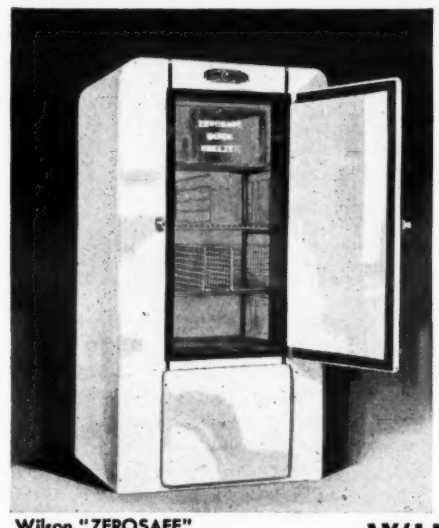
Nothing Else to Blame

"In other 'Freon' machines, we have changed oil because it foamed, discolored, or just because we could find nothing else on which to blame our trouble."

In the other parts of the symposium Dr. Walter O. Walker, director of research and development, Ansul Chemical Co., discussed "The Separation of Wax from Oil Refrigerant Mixtures." Explaining in detail this troublesome phenomena, Dr. Walker outlined the method of laboratory analysis. He also made a slide presentation of wax separation temperature level versus percent mixture of oil in refrigerant for both methyl chloride and "Freon-12."

Ross Gives Refiner's View

Dr. Edgar S. Ross of the Sun Oil Co., summed up the lubrication problem, giving the refiner's viewpoint. He outlined the sources of the three principal types of crude oils and explained that the refiner must avoid over-refining in order to retain a sufficient proportion of aromatics to provide a binder for parrafenics and naphthenics, thus avoiding separation.



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Model FF-15 Farm Freezer

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If your merchandising plans include the selling-and-servicing of a complete line of modern freezers that are outstanding in quality and leadership, let's exchange information today. Address Desk 11.

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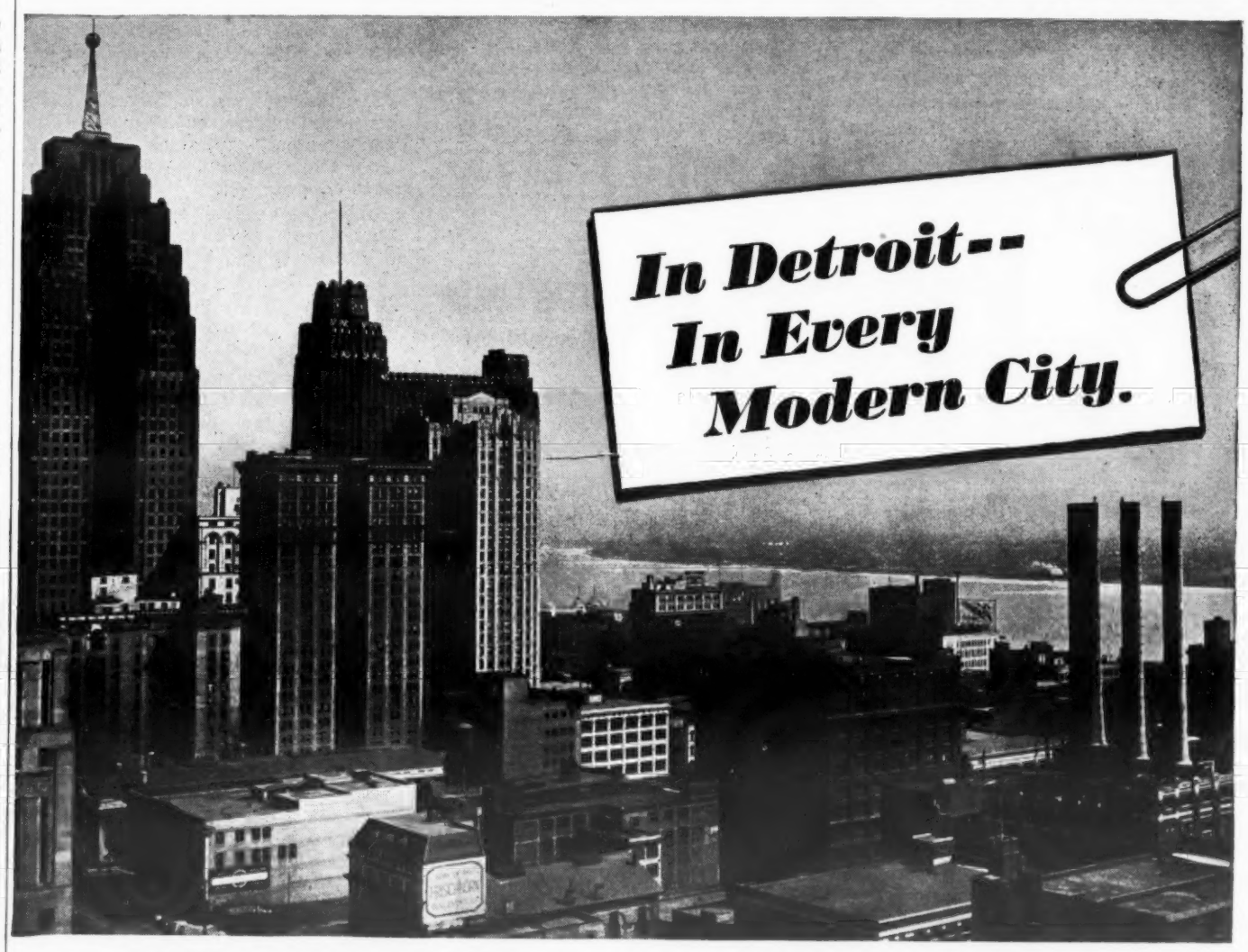

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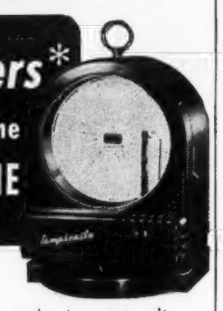

The TEMPSCRIBE Recorder is outstanding for its universality. Any TEMPSCRIBE can be quickly converted from temperature recording to time-operation recording simply by changing the door of the instrument. A widely-used combination comprises one clock case (having a 24-hour spring-wound movement) and two doors (one with a bi-metallic temperature element, and one with mechanism for recording motor on-and-off time). This economical set costs very much less than a dual recorder. Even two complete TEMPSCRIBES, to obtain simultaneous records of temperature and motor operation, cost no more than you would normally expect to pay for a single instrument that makes dual records, yet give you all the advantages of two separate instruments!

Bul. 704 gives list of ranges, practical application data, and complete details.

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Servicing Truck Refrigeration Units

Editor's Note: The construction of a truck "hold-over" plate, and how the eutectic solution in it functions to provide the "hold-over" effect is explained in this instalment, which was prepared with the assistance of Kold-Hold Mfg. Co., Lansing, Mich.

Instalment No. 28

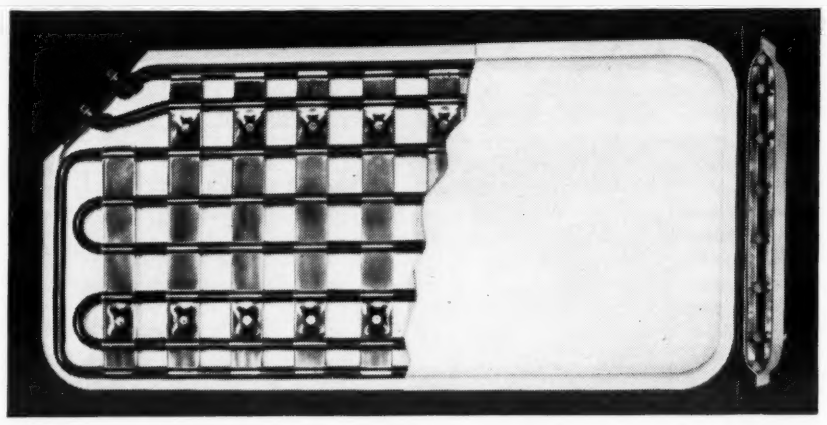


Fig. 2 shows the inner construction of a typical truck plate. Note the cross-section view at the right.

* * *

Design of Plates

The pipe coils within the eutectic plate, as shown in Fig. 2, permit the passage of refrigerant to freeze the eutectic solution which surrounds the coils. In this particular design incoming refrigerant makes a complete circuit of the perimeter of the plate before passing through the center section and finally to the plate outlet. The coils are of seamless steel and can be employed with "Freon," methyl chloride, or ammonia.

Spaced along the coils are "I-bar" fins to provide extended surface comparable to the conventional finned coil for better heat transfer from the eutectic solution to the refrigerant. The coils and fins are encased in a 16-gauge cold-rolled steel jacket which is seam-welded.

Final step in the manufacture of these plates is to fill them with the eutectic solution. This solution is poured in through a screw plug opening which is then sealed. The eutectic solution surrounds the pipe coils and the fins.

Truck plates are produced in various sizes and can be filled with different eutectic solutions, depending upon the application and temperatures desired.

In external size standard truck plates vary from 24 in. x 50 in. x 2⅝ in. to as large as 36⅛ in. x 66 in. x 2⅝ in. They are also available in thicknesses of 1⅞ in. and 1 in.

Eutectic Solution

The type of eutectic solution in a truck plate determines the temperature which the plate will produce. Eutectic solutions consist of water to which the proper amount of a selected salt or salt combination has been added and properly mixed.

Type "D" solution used by Kold-Hold, for example, has a freezing point of -7.6° F. A plate charged with this solution can maintain a temperature of approximately 0° F. in a properly insulated truck body. Another eutectic solution has a freezing point of 18°, while a third freezes at 28° F.

In common design practice, an 8° to 12° difference between the freezing point of the solution and the temperature of the refrigerated space is to be expected.

Main source of refrigeration with a eutectic plate is the absorption of heat from the space being refrigerated to melt the frozen solution. As with ice, considerably more heat is required to change the solution from a solid state to a liquid state than merely to raise the temperature of the frozen or liquid solution. One pound of ice at 32° F. requires 144 B.t.u. to melt into water at 32° F. This is called the "latent heat of fusion."

Similarly, the latent heat of fusion of Kold-Hold's Type "D" solution is 106 B.t.u. This means that 106 B.t.u. would be required to change this one pound of solution from a solid at -7.6° F. to a liquid at the same temperature. Type "F" solution has a latent heat of fusion of 96 B.t.u. per pound; Type "K," 135 B.t.u. per pound.

Theoretically, it would seem that by varying the amount or kind of salt employed in a eutectic solution, almost any change desired in the freezing point and/or latent heat of fusion could be readily obtainable.

Temperatures Limited

Actually, however, practical considerations tend to limit the choice of eutectic solutions for truck plates to the three types already mentioned having freezing points of -7.6°, 18°, and 28° F.

Up to the present time, at least, the truck plate industry is generally limited to the above-mentioned three types of eutectic solutions.

Learning About New Servel Unit

Employes at the Hudson, Wis. plant of United Refrigerator Co., commercial refrigerator manufacturer, are seen at a recent session of Servel's service training school on the firm's new Supermetic condensing unit.

* * *

Servel Meetings Stress Service, Installation

EVANSVILLE, Ind.—This spring has seen the inauguration of a series of service training meetings by the Electric Refrigeration Division of Servel, Inc.

The meetings, already held in nine key cities, are designed to bring to distributors and allied manufacturer personnel latest developments in the Servel "Supermetic" condensing unit line. Special emphasis has been given at the meetings to service and installation problems.

Already nearly 700 men have attended meetings in Boston, Springfield, Syracuse, New York City, Philadelphia, Cleveland, St. Paul, Hudson, Wis., and Evansville. George Eager, Servel service manager, has been in charge of the meetings.

Two meetings are scheduled for mid-April—one in Atlanta and one in Memphis. Besides Mr. Eager and J. A. Madden, Servel service engineer, Harry Bell, eastern manager, and W. G. McGuire, field sales representative, will be at Atlanta; Mr. Eager, Mr. Madden, W. R. Bristow, W. F. Cissell, and J. N. Schnur, will be at Memphis.

Kramer-Trenton Compiles Refrigeration Load Data

TRENTON, N. J. — Engineering data for refrigeration load calculations have been compiled into a 16 page catalog and published by the Kramer Trenton Co. here.

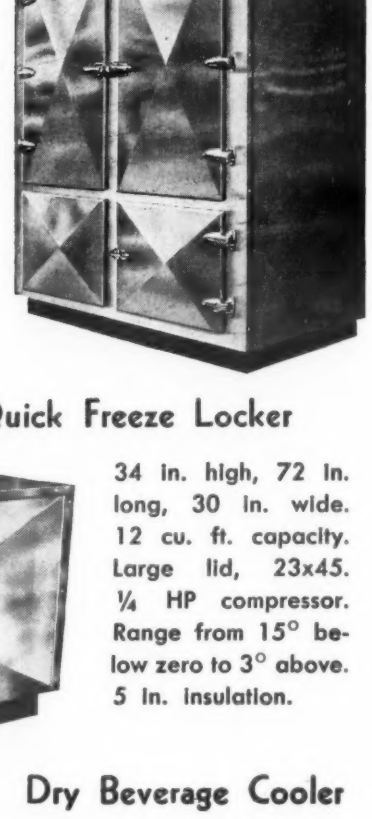
The book, known as catalog R-114, discusses the four general sources of heat—wall losses, air changes, product load, and miscellaneous—and provides illustrative tables and a set of sample problems to explain them.

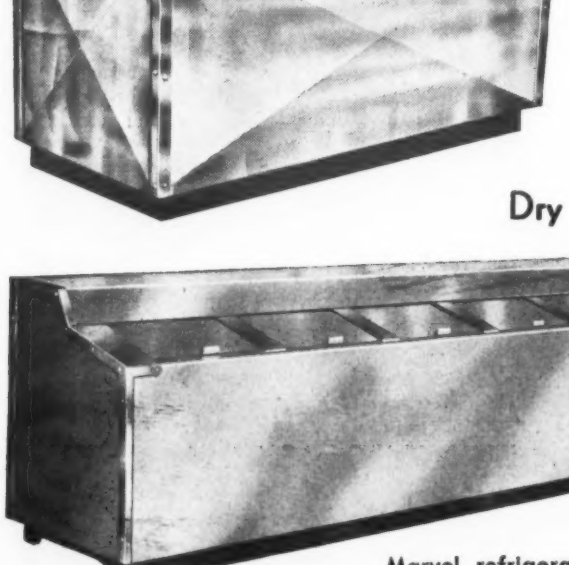
The remainder of the volume is devoted to tables of data helpful in figuring a commercial refrigeration job. The tables include storage data for various products, coil capacities required for display cases, standard weight pipe, comparative flow capacities of standard pipe, average refrigerating capacities of "Freon" condensing units, formulae for the determination of size and speed of pulleys or gears, beer data, and pressure drop in suction lines.

MARVEL QUALITY LINE of Refrigeration

Reach-in Cooler

72 in. high, 61 in. wide, 34 in. deep. Cooler model has 37 cu. ft. cooling space. Combination model has 11 cu. ft. freezing, 23.5 cu. ft. cooling. Insulation 5 in. around freezer, 3 around cooler. 1/3 HP compressor. Blower coil. Adjustable controls.





Quick Freeze Locker

34 in. high, 72 in. long, 30 in. wide. 12 cu. ft. capacity. Large lid, 23x45. ¼ HP compressor. Range from 15° below zero to 3° above. 5 in. insulation.

Dry Beverage Cooler

39 in. high, 30 in. wide, 6, 8, or 10 ft. long. Lids slide away or lift out. Removable dividers. 8-in. utility shelf.

Marvel refrigeration units are finished in Stainless Steel or polished Aluminum.

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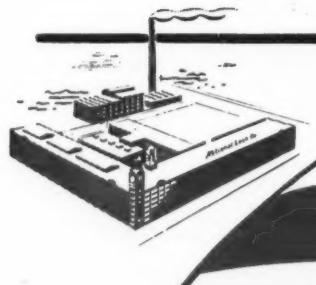

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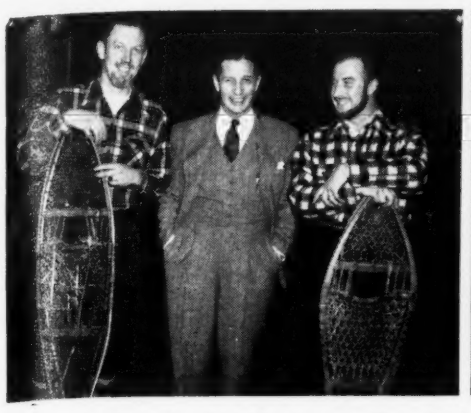

(Left) **Behind the beards surrounding Bob Tyler, president, Tyler Fixture Corp., are Paul Garthe and Bob Nash of Paul Garthe Co., Traverse City, Mich. The "beavers" will provide atmosphere for that city's centennial celebration this summer. (Right) Bursting into song is Saul Berstein, United Refrigeration Sales & Service, Pittsburgh.**

(Left) Joe Krall, executive vice president at Tyler, talks things over with Don Brown, of Chapin-Owen, Inc., Rochester, N. Y. (Right) Donald Rosenburg, David Redenbaugh, and Frank Schmoe of Commercial Sales Refrigeration, Inc., Indianapolis.

Union Move In Massachusetts Blocked--

(Concluded from Page 1, Column 4)

named a committee of three to oppose it.

Aid of three state-wide grocers' associations, hotelmen, and a restaurant owners group was enlisted to fight the measure, said Mr. Lambert, who adds that a similar bill on diesel engines was proposed by the unions and subsequently killed some five years ago.

This move is representative of "what the unions are trying to sneak through the back door in the form of legislation," he also declared.

Text of the proposed bill was as follows:

"No refrigeration system containing more than 50 lbs. of refrigerant shall be maintained or operated in any building except under the personal supervision, direction, and control of a duly licensed engineer or a person who has obtained a certificate of qualification from the department of public safety to operate such a system.

"Where the system contains 200 lbs. or less of refrigerant and is fully automatic, only one qualified operator will be required. No refrigeration system containing less than 20 lbs. of refrigerant shall be maintained or operated in a public building or exhibition hall for exhibition or demonstration purposes except under the personal supervision, direction, or control of such person.

"Upon receipt of such certificate, an applicant therefor shall pay an initial fee of $5, and an annual renewal fee of $1, provided application for such renewal is made within 30 days prior to the expiration of such certificate. Any such certificate may be revoked or suspended for cause by any boiler inspector in said department.

"Any person who holds an engineer's license or any person who has operated a refrigeration plant for the period of one year shall be eligible to receive such a certificate, if application therefor is made to said department within 30 days after the effective date of this act."

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Wanted a general manager to manage a heating, air conditioning, and refrigeration business. Nationally known products. City in Ohio. Applicant must be capable of earning minimum of $10,000 per year. State education, experience, and qualifications. Replies will be treated confidentially.

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Install these units for your customers and cut your service calls to a minimum. Buy the beer faucet of *perfect performance* direct from the manufacturer and increase the profits of both yourself and your client. Write for particulars now!

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Also, a similar opportunity for several engineers experienced in refrigeration cabinet design and production.

Write for further information today—all correspondence held in strict confidence.

REFRIGERATION DIVISION
AMANA SOCIETY AMANA, IOWA

Edison Adopts New Plan For Installing Gas Heaters

NEW YORK CITY — Consolidated Edison Co. of New York, Inc. has temporarily abandoned its announced plan for cooperating gas household heating equipment dealers to charge a flat price for equipment, installation, and service. In its place the company has adopted a detailed competitive bidding plan for its 650 dealers in metropolitan New York.

The new arrangement, announced by Brig. Gen. E. T. Jeffe, vice president in charge of sales, is to become effective April 15. It will operate in the following manner.

Consolidated Edison's sales technical staff will determine the proper type and size equipment for the user's hot water or space heating needs. Then the three cooperating dealers nearest prospects home will be asked to submit bids on the installation.

These in turn will be turned over to the customer, who then has the opportunity to choose the one he wants. Bids from non-cooperating dealers will also go to the prospect.

Gen. Jeffe cited the wide divergence of estimated flat prices as the reason for the utility temporarily abandoning the flat-rate proposal. However, he said that the company has not given up its plan, but postponing it.

Smokeless Soft Coal Heater Readied for Fall Market

NEW YORK CITY—A new smokeless household space heater, using low cost bituminous coal for fuel, will be on the market in quantity before the 1947-48 heating season, according to T. A. Day, special representative of Bituminous Coal Research, Inc.

Known as the B. C. R. smokeless heater, it was developed jointly by Bituminous Coal Research, the Batelle Memorial Institute, and 18 stove manufacturers, he declared.

Scheduled for production by the participating manufacturers, nine of whom are working on their own individual modifications, the heater will offer a wide selection in price, capacity, and exterior finish, he averred.

Kennecott Copper Corp. Sets Up Firm Price Policy

NEW YORK CITY — As a step toward price stabilization in the industry, the Kennecott Copper Corp. last month established a firm price policy on copper sales in the domestic market.

As long as a fixed or firm price is in effect, shipments made on all contracts will also be billed at that price until such time as the price may be changed.

Before this policy became effective, sales were billed at prices prevailing on the date of shipment.

Copper users were said to believe that this policy will pave the way for possible firm price policies on the part of electrical manufacturers in the near future.

Detrola Buys Blast Furnace To Supply Its Pig Iron Needs

DETROIT—Purchase by International Detrola Corp. of the Wheeling Steel Corp.'s blast furnace property in Martins Ferry, Ohio, was announced last week by C. Russell Feldmann, president of Detrola.

"This addition is a step to assure our Newport (Ky.) open hearth and rolling mill operations an annual supply of some 150,000 tons of pig iron," Mr. Feldmann said, "and thus assist in meeting our steel-making and steel-fabricating commitments, both to customers and to our own manufacturing divisions."

A MASTERPIECE in Thirst-quenching Convenience

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21 cu. ft. remote or self-contained
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Complete with fluorescent lights, slides, and valve.
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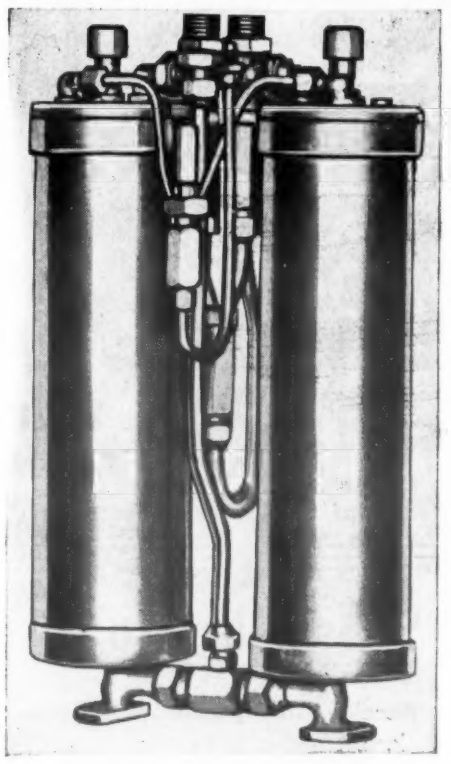
DEALERS WANTED

Must have carbonator sales or service experience. Must be ambitious, alert, of good character and willing to work for big profits. Give full details in first letter.

This is a bona fide advertisement for more dealers to help distribute Hudson Constant Pressure Carbonators in every town and village in this country.

Last year Hudson was the most sensational selling item in the field. This year we'll beat all sales records—30,000; 40,000—yes maybe 50,000. We're doing the heavy duty selling —thru dominating advertising in leading trade journals—and getting handsful of inquiries from excited prospects. We need more dealers in available territories to help us handle these inquiries promptly. Do you want to co-operate?



✓ CHECK THESE IMPORTANT ADVANTAGES

- No motor
- No pump to pack
- No damp basements
- No soda coils
- No oiling or greasing
- No electricity
- No complicated machinery
- No replacement of pinion gears
- Constant, even pressure
- Entirely automatic
- Automatic purging
- Entire unit installed inside fountain
- 25 gallons or more per hour
- Will operate soft drink dispensers

HUDSON PRODUCTS CO. Inc. 4400 ST. AUBIN AVE. Dept. A DETROIT 7, MICH.

EXPORT DIVISION • 2111 Woodward Avenue, Detroit 1, Michigan, Cable: FORACO

PAR REFRIGERATION EQUIPMENT

Tops in PERFORMANCE ECONOMY and EFFICIENCY

Lynch . . . By Comparison—You'll Buy PAR
Manufacturing Corporation
General Offices, Toledo 1 • Factory, Defiance, Ohio, U.S.A.

NIBCO WROT
AND CAST
VALVES AND FITTINGS
for Refrigeration
NORTHERN INDIANA BRASS CO.
ELKHART, INDIANA

KRACK ENGINEERED
UNIT COOLERS
FIN COILS
AIR CONDITIONING
Refrigeration Appliances, Inc.
923 W. Lake St., Chicago 7, Ill.

NIAGARA
"NO-FROST" METHOD
WITH SPRAY COOLERS
. . . gives always full capacity because there is no interruption for defrosting at sub-zero temperatures; protects quality in foods.
NIAGARA BLOWER COMPANY
30 Years of Service in Air Engineering
405 Lexington Ave., New York 17, N. Y.

GENUINE MAYFLOWER
AIR CONDITIONERS

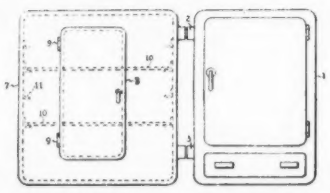
Air Conditioners
Licensed Under
U. S. Patents
No. 2,048,246
No. 2,055,528
MAYFLOWER PRODUCTS, INC.
Richmond, Ind.

Bowen
REFRIGERATION SUPPLIES, INC.
Atlanta Jacksonville
Tampa Miami Charlotte
"The South's Largest Refrigeration Supply Jobber"

PATENTS

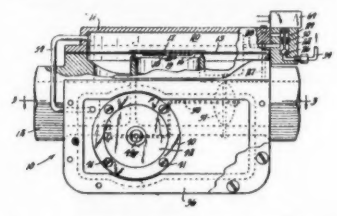
Week of Jan. 21

2,414,588. AUXILIARY REFRIGERATOR. John G. Elliott, Detroit, Mich. Application Oct. 27, 1944, Serial No. 560,578. 4 Claims. (Cl. 62—89.)



1. The combination with a refrigerator including a refrigerated cabinet, of an auxiliary cabinet for intermittent connection to the refrigerated cabinet, one of said cabinets having upper and lower spaced tubular fittings fixed thereof, communicating therewith, and laterally projecting therefrom, and the other cabinet having similarly spaced openings in a lateral wall thereof disposed to snugly receive said fittings when the cabinets are in mutual proximity, whereby an air flow may be established between said cabinets.

2,414,754. CONTROL DEVICE. Sidney K. Malek, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application July 15, 1943, Serial No. 494,800. 5 Claims. (Cl. 137—144.)



I. In a control device, a supply line, means for establishing an adjusted maximum flow through said line in a plurality of steps and comprising, a first pressure motor in association with a first valve, a second pressure motor in association with a second valve, a passageway connecting said motors, said valves being positioned in series in said supply line, said first named valve being operable between closed and open position, said second valve being operable between an adjustable minimum flow and an adjustable maximum flow position, adjustable abutment means for determining the minimum flow position and the maximum flow position of said second valve, means in said connecting passageway for controlling the rate of flow of operating pressure to and from said second motor and hence the rate of movement of said second valve, said last named means being adjustable from the exterior of said device, and a single pilot valve for controlling all operable movement of said first and said second valves.

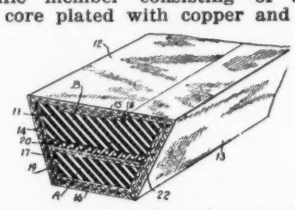
AVAILABLE FOR LICENSING OR SALE

Pat. 1,918,046. COOLING CHEST FOR FOODSTUFFS. Patented July 11, 1933. An insulated chest of the usual rectangular construction for cooling (or heating) food. Cover opens upward. The chest is used in combination with automatic refrigerators of the type that form ice cubes in trays. In operation a tray of ice cubes is removed from the refrigerator and placed in a container in the chest. According to inventor contents of chest will keep cool from 12 to 24 hours. A heating element may be placed in the chest instead of a cooling element when it is desired to keep contents warm. (Owner) Julien Loeb, 385 East 13th St., Brooklyn 18, N. Y. Group 35—84. Reg. No. 5,025.

Week of Jan. 28

2,414,822. WIRE REINFORCED BELT. Ralph P. Lindsay, Detroit, Mich., and Allen R. Lindsay, Cleveland, Ohio, assignors to The Dayton Rubber Mfg. Co., Dayton, Ohio, a corporation of Ohio. Application June 25, 1943, Serial No. 492,224. 6 Claims. (Cl. 74—233.)

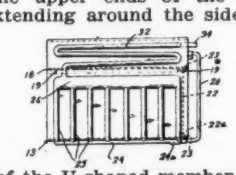
1. In an endless belt of the class described, reinforcing means comprising a metallic member of length greater than that of the belt, and arranged in helical form with its convolutions spaced from each other and disposed to run with the belt along the neutral zone thereof, said metallic member consisting of a steel wire core plated with copper and having



a further coating of rubber composition and an outer sleeve of a loose weave material therearound.

2,414,952. EVAPORATOR UNIT. Bernard C. Johnson, Mundelein, Ill., assignor to Houdaille-Hershey Corp., Detroit, Mich., a corporation of Michigan. Application Sept. 8, 1944, Serial No. 553,194. 5 Claims. (Cl. 62—126.)

1. A heat exchanger comprising a U-shaped member having headers in the side legs thereof in spaced relation beneath the upper ends of the side legs, ducts extending around the side legs and



bottom of the U-shaped member communicating with the headers, inturned flanges on the tops of the legs above the headers, serpentine ducts having superimposed elongated runs in the portions of the legs between the headers and the flanges communicating with the tops of the headers to convey spent heat exchange fluid from the headers, and spent refrigerant outlets.

(To Be Continued)

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $2.50 per insertion. Limit 50 words.
RATES for all other classifications $5.00 per insertion. Limit 50 words.
ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count.

POSITIONS WANTED

YOUNG MARRIED man wishes a position as service man or helper for air conditioning and refrigeration units. Have tools. No car. Will travel anywhere. 2 years electrician's helper. I.C.S. course. Can handle domestic conventional type units. JAMES BELL, West LaFayette, Ohio.

YOUNG EXECUTIVE wants position as divisional manager or representative for manufacturer or large distributor of domestic, commercial refrigeration, or air conditioning equipment. Ten years experience management, warehousing, advertising, sales, service, and distributor dealer organization. Excellent references, education, and business background. BOX 2284, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION sales engineer seeks wholesale connection with manufacturer. Twenty years experience this field, twelve years with large outstanding manufacturer. Know equipment for meat market, grocery, restaurant, hotel, drug trade. Acquainted with jobber and dealer outlets in Missouri, Kansas, and southern Illinois. Age 45, college education. BOX 2302, Air Conditioning & Refrigeration News.

EXPERIENCED MANUFACTURERS representative calling on refrigeration jobbers and manufacturers in Michigan and Ohio will give your line personalized attention for concentrated sales effort. Headquarters Detroit. BOX 2305, Air Conditioning & Refrigeration News.

AIR CONDITIONING and refrigeration design and application engineer desires permanent connection with dealer, consulting engineer or manufacturer in Florida area. 17 years total mechanical experience, past 9 responsible charge of all phases of industrial and commercial conditioning and refrigeration. BOX 2307, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER ten years experience air conditioning and commercial refrigeration including field installation and service, purchasing, and factory production applications of conventional and hermetic condensing units. Capable of supervising personnel and meeting public. Member of ASRE and RSES. Location preferred Illinois, Missouri, Kansas, Oklahoma. BOX 2309, Air Conditioning & Refrigeration News.

SALES ENGINEER—desires to represent manufacturer or large distributor of refrigerated equipment. Employed at present, have excellent record, steady earnings each year up to $15,000. Good connections, top references. BOX 2312, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

REFRIGERATION SERVICE men. Thoroughly trained and experienced. Excellent proposition. Earnings above average, perfect working conditions for New Mexico. Health spot of the west. Permanent earnings 3 to 5 thousand annual. Low living cost. Only reliable men need apply. A. A. HICKS, Box 728, Albuquerque, New Mexico.

REFRIGERATION AND oil burner supply jobber has a vacancy for a salesman and a counterman. Must have experience in either industry or both. Applicants must have managerial ability. Good opportunity. Write stating age and qualifications. THE CAPSON CO., INC., 106 Rogers Ave., Brooklyn 16, N. Y.

WANTED—EXPERIENCED refrigeration counterman. Good opportunity for advancement. Apply in own handwriting, stating jobbing and any other experience, education, and starting salary required. Applications will be treated strictly confidentially. J. M. OBERC, INC., 904 W. Baltimore, Detroit 2, Mich.

SALES REPRESENTATIVE for Middle West manufacturer of commercial refrigerators, now producing outstanding walk-in coolers and beverage coolers; soon other items; to cover north or south territory. Must have following with refrigeration dealers and distributors. State full qualifications. BOX 2267, Air Conditioning & Refrigeration News.

SALESMEN TO represent manufacturer of home freezer units in principal cities. Must have refrigeration sales experience plus extensive contacts among jobbers and dealers. Sell on straight salary plus expenses. All applications strictly confidential. Apply BOX 2271, Air Conditioning & Refrigeration News.

WANTED: SALES engineer to head air conditioning and commercial department of old established company in Illinois. City over hundred thousand population. Prefer married man; must be licensed engineer capable of managing men. Position available April first. Salary and per cent of profits. Address BOX 2276, Air Conditioning & Refrigeration News.

CENTRAL OHIO distributor of nationally advertised commercial refrigerators, home and farm freezers wants four salesmen. Two men with experience selling appliance and farm implement dealers and two men experienced in selling retail food stores and supermarkets. Liberal drawing account and commission arrangement. Car required. BOX 2297, Air Conditioning & Refrigeration News.

6 COMMERCIAL REFRIGERATION servicemen needed by large long-established installation and service organization in Chicago. Permanent positions with steady annual earnings. $1.95 per hour with time and a half over forty hours and car allowance. Must have a car. Give full experience and back-ground. BOX 2298, Air Conditioning & Refrigeration News.

REFRIGERATION SALES engineer—experienced. Exceptional proposition with an old established wholesale firm in Ohio handling well advertised, nationally known brands on exclusive basis. A real opportunity for a man interested in a position that will yield him excellent earnings. Salary, commission and expenses. Write BOX 2301, Air Conditioning & Refrigeration News.

WANTED IMMEDIATELY for American company in India experienced refrigeration and air conditioning engineer with executive ability capable of managing business, preferably single, good salary plus bonus. Contract for three years with vacation. Successful candidate will be allowed to choose American engineer to assist him. BOX 2308, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

MOTORS AND condensing units—available at once—⅛-¼-⅓-½ Universal condensing units with or without motors. Special—six hole ice-cream cabinets with ¼ hp. Copeland units less motors $225. Also beverage coolers, beer equipment, stainless steel reach-in freezers. ALBROD CORP., 319 West 48th St., New York City 19. CI 6-9100.

20 UNITS ARMY surplus used for cooling radar tubes. Suitable for air conditioning units, unit heaters. Radiator 28 inches square, one HP. Ilg blower. Ingersoll-Rand moto pump. Cost Government $950.00. Complete with thermostatic controls, thermometer, $175.00 shipping weight 1000 pounds. ALL OFFICE MACHINES CO., 4636 W. Washington, Chicago, Ill.

IMMEDIATE DELIVERY—new air conditioning equipment. Weathermakers complete with motor, "Freon" coil, etc. 2 ton to 25 ton. SWSI, DWDI, and twin centrifugal blowers, propeller fans, heating and cooling coils, evaporative condensers, self-contained air conditioning units, condensing units. CONTROLDTEMP CORP., 236 Butler St., Brooklyn 17, N. Y.

CONDENSING UNITS (Genuine) ¼ and ⅓-hp. complete. Write for particulars and prices. Good quantities available. DRAFT-MASTER REFRIGERATION, INC. Designers-Manufacturers, 1703-5 W. Baltimore St., Baltimore 23, Md. GImor 2185—EDmondson 4542.

FOR SALE—AC motors ½ to 3 hp. single and 3 phase, list price. Immediate delivery. EDISON COOLING CORP., 310 E. 149th St., Bronx 51, N. Y.

QUALITY BOBTAIL fountains; reach-ins, walk-in boxes—wood, metal; dough retarders; double duty cases—stainless steel, porcelain; dairy, florist, bakery cases; ice cream hardening cabinets; thermopane frozen food cases; milk, sandwich coolers; stainless steel back bars; with machines. Equipment made to special order. FRIGITEMP CORP., 931 Bergen St., Brooklyn 16. MA 2-9093.

½ HP. AIR cooled condensers, condensing unit bases. ¼ & ⅓ hp. air cooled condensing units. Motors: ½-¾-1 hp. 110-220 V. 60 cycle, single phase a.c. Immediate Delivery. KELMORE SERVICE, INC., 599 Springfield Ave., Newark 3, N. J.

AVAILABLE IMMEDIATELY—2 ft. 6" x 6 ft., LH, special freezer doors. 6 inch insulation. Front, back of door of heavy gauge metal. Beveled wood sill, three hinges, roller fastener. Batten doors back of frame. $70 each F.O.B. Boston. Quantity prices quoted. IRA E. McFARLAND, 500 Fifth Ave., New York, N. Y.

1000 MOTORS. FOR sale, from stock ⅝ hp.—3425 RPM—3 ph/230 V. (Underrated—easily equal to ¾ hp.) Ballbearing, for vertical or horizontal. Enclosed Fr. ¾ in. shaft. $36 each. This rugged motor cannot burn out. (Glass insulated wire coils.) MODERN SUPPLY CO., 206 Fulton St., New York 7—CO 7-0100.

COMPRESSORS AND PARTS rebuilding—Compressors, float valves, water valves, low pressure controls, evaporators, water cooled condensers, condensing units and many other items replaced from our large stocks, or repaired upon receipt of your defective material. Send for our catalog-prices listed. REFRIGERATION MAINTENANCE CORP., 321 E. Grand Ave., Chicago, Ill.

SECTIONAL WALK-IN Coolers. Kiln dried fir front, spruce interior. Chrome hardware, metal saddle, finished shellac 4 in. Fiber $1.20 for freezers 6 in. Fiber $1.40 per sq. ft. Cork insulation prices on request. Limited number new refrigeration units, coils, etc. available. Send us your requirements. REFRIGERATION SPECIALTIES, INC., 721 Flushing Ave., Brooklyn 6, N. Y.

CAPILLARY TUBES. Part No. 1140. One model fits all household units up to and including ⅛ HP SO2, Methyl, "Freon." Has proper inside diameter and length, thus allowing unit to operate satisfactory without high head pressure. $1.10 each. Write for bulletin No. 14 listing parts for sealed units. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

FLOAT REPLACEMENTS. For replacing defective high side floats on all household units. Regular charging connection, capillary tube setup, internal strainer and exact mounting plate. Part #2000-Westinghouse (4 hole plate), and #2010 (3 hole plate): Part #2020-Gibson Part #2030-General Electric (DR-1 & DR-2). Part #2040-For general replacement (undrilled plate). $6.75 each. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56.

SEALED CROSLEY TERMINALS. Installed from the outside in a few minutes without opening the compressor. Corrects leaky terminals on all Crosley "F-12" units. Set of three $6.75 (Part No. 1020). Installation tool $1.65. Immediate delivery. Money-back guarantee. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

JOBBERS! PISTONS for Crosley compressors. Exact replacements. Beautifully ground, perfect alignment. The only stock available in the middle west. Dealers & service companies! Condensing units, complete. ⅛s, ¼s, ⅜s, SQUARE DEAL SUPPLY CO., 904 N. Illinois, Indianapolis, Ind.

FOR SALE: Isobutane refrigerant. Price small lots—$1 per pound; in lots of 100 pounds, 65 cents per pound. Freez-O, a perfect refrigerant for Frigidaire Meter Miser—price in small lots $1.50 per pound; lots of 100 pounds $1 per pound. Send your cylinders to STANDARD REFRIGERATION CO., McKees Rocks, Pa.

SECTIONAL WALK-IN boxes; walk-in reachin boxes; condensing units ¼ to 10 HP; blower coils; all metal reachin boxes. 32-40-60-80 cu. ft., solid and glass doors; 6' beverage coolers unitized; 6' all stainless steel beverage coolers remote. VIKING SALES CORPORATION, 1481 West Washington Blvd., Los Angeles, Calif.

WANTED GRUNOW units & compressors—any condition. BOX 2281, Air Conditioning & Refrigeration News.

ICE-REFRIGERATED BOTTLE coolers—new 4'-5'-6' lengths—24" wide 33½" high. capacities 324, 402 and 480—12 oz. bottles. Heavily constructed all-steel, galvanized liner. Priced right—reasonable quantities for immediate deliveries. Wire or write BOX 2293, Air Conditioning & Refrigeration News.

SECTIONAL WALK-IN coolers made by a box maker's box maker. Highest quality material and workmanship. 4 inch fiberglass $1.15 per sq. ft. We make special boxes to your own specifications. Send for literature. BOX 2299, Air Conditioning & Refrigeration News.

FRANCHISES WANTED

WELL ESTABLISHED firm in South Africa with branches throughout the Country and large and modern workshops, require franchise for that Country of domestic refrigerators, oil-burner refrigerators and electric stoves. Write to BOX 2292, Air Conditioning & Refrigeration News.

MANUFACTURERS OPPORTUNITY. A major refrigeration company with the largest display rooms in New York City. 30 foot window and 5000 cu. ft. showroom space in automobile section desires connection with volume supplier of stainless steel reach-in boxes, all sizes. BOX 2300, Air Conditioning & Refrigeration News.

MANUFACTURERS AGENT for Chicago territory. Interested in line of frozen food display cases, reach-ins, walk-ins, home, farm freezers units etc. Will finance Chicago distributorship and develop dealer organization of twenty to thirty salesman for Chicago. Also develop distributors, dealers within two-hundred mile radius. BOX 2306, Air Conditioning & Refrigeration News.

FRANCHISES AVAILABLE

TERRITORY NOW available in states east of Mississippi River. Complete line of Jaden Golden Rod air conditioning and heating equipment. We can deliver. America's fastest selling line of air conditioning equipment. TEMP-CONTROL INC., 208-210 East State St., Peoria, Ill.

BUSINESS OPPORTUNITIES

FOR SALE: Long established refrigeration and air conditioning sales and service business in large midwestern city. Nationally known sales distribution franchises. Excellent consistent earning record. Requires only nominal supervision. Seasoned technical and sales organization will stay with new owners if desired. Cash investment of $100,000 required. BOX 2290, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION sales and service in Michigan. Established valuable franchise, year around business, excellent location; competent help and low rent with trucks; well stocked with quick turnover merchandise. Consider partner or will sell outright $20,000. Value 1946 sales $140,000. Business opportunities unlimited. Don't miss this. BOX 2304, Air Conditioning & Refrigeration News.

FRIGIDAIRE DEALERSHIP. Excellent territory. Southwest. Large store, low rent, good personnel. Business going and showing nice return. New merchandise inventory $8000.00, all popular equipment. Small capital will handle. All or partnership. Reason for selling—other interests. Must have Frigidaire experience and be reliable. BOX 2311, Air Conditioning & Refrigeration News.

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Receive the greatest trade paper in the Industry—AIR CONDITIONING & REFRIGERATION NEWS. Published every week. Brings you latest news and vital information on household refrigeration, commercial refrigeration, air conditioning, home freezers; manufacturing, distributing, retailing, servicing, and contracting. Only $4 per year, 52 issues.

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4/7/47

Why Oil In A Refrigerating System Can Cause Damage Explained by Kellie

By George M. Hanning

DETROIT — What happens when lubricating oil escapes from the compressor and the damage it can do to the refrigerating system was described here recently by Edward Kellie, vice president of the American Injector Co.

Addressing the Refrigeration Contractors Association of Detroit, Mr. Kellie declared that oil cannot be prevented from leaving the compressor, but it can be prevented from damaging the system through use of an oil separator.

An oil separator, located between the compressor and condenser, will separate out 99.3 to 99.7% of the oil leaving the compressor, he stated. What is left in the line will travel right through the system with the gases and will not trap out anywhere. It doesn't stay in the system long enough to coat up anything, he asserted.

Refrigerant gases have an affinity for oil. They pick it up and carry it out of the compressor even when the compressor is new, he said.

Some gases can carry up to 57% oil in solution, he pointed out. Conditions governing the amount of oil carried will vary, however. Therefore, it is impossible to compensate for the amount of oil going out of the compressor.

If the refrigerant gas leaving the compressor contains 10% oil, the compressor must work 10% longer to get the desired amount of refrigeration, he averred.

Under high compression temperatures, some oil will go over to the condenser practically as steam. It will attach itself to the condenser walls and act as an insulator. It thus reduces the rate of heat transfer.

This action will consequently raise the head pressures in the compressor and change the condensing temperature, Mr. Kellie stated.

From the condenser, the oil goes to the liquid receiver and the liquid line. Here the dehydrants pick up the moisture from both the oil and the refrigerant.

However, he noted, the dehydrant does not remove moisture from a mixture of oil and refrigerant as quickly as it does from either alone.

In addition, sludge formed by the alternate heating and cooling of the oil as it travels through the system, may form a coating around the dehydrant particles and slow down the process of adsorption even further.

When the oil reaches the expansion valve, carbon or sludge can build up around the seat of the needle and keep the needle from closing tightly.

In the evaporator, Mr. Kellie declared, the oil can do its worst mischief by coating the inner surface of the evaporator tubes with oil bubbles. Heat then must penetrate the wall of the tube, the skin of the bubble to get inside, and the skin again to escape before it reaches the refrigerant.

This insulating quality of the bubbles keeps the refrigerant from absorbing all the heat it should and reduces the efficiency of the evaporator, he said.

This same film of oil bubbles may also appear in the suction line. There it prevents the thermo bulb from being affected properly by the temperature of the refrigerant. The bulb will keep calling for more refrigerant and will prevent the compressor from cutting off. Excessive operation of the unit and "hunting" results.

If the oil condition in the evaporator builds up so that a liquid slug of oil finds its way into the suction line, that slug will hit the compressor a sledge-hammer blow and cause great damage, he asserted.

Another danger to the compressor can come from the formation of a mixture of oil, methyl chloride, and moisture. This mixture forms copper salts from the tubing that will carry copper particles around the system to the compressor.

Under the heat of compression these particles will attach themselves to the compression chamber as firmly as though they had been electrolytically plated there, according to Mr. Kellie.

An oil separator, connected between the compressor and condenser, will prevent this copper plating action, he said.

The use of a separator will prevent almost all of the oil from traveling around the system by making a change of direction in the flow of the gas and by causing a decrease in pressure due to the larger volume of the shell, he explained.

The volume of the separator shell is more important than the baffling, declared Mr. Kellie, because it will cause the vaporized oil to condense and fall to the bottom of the separator. The refrigerant, however, remains in a gaseous state and passes along the discharge line to the condenser.

Mr. Kellie pointed out that insufficient insulation around the separator will cause the refrigerant, as well as the oil, to condense.

Normally, a float valve will prevent any refrigerant from returning through the oil return line to the crankcase.

However, condensed refrigerant, added to the liquid oil, will force the float valve to hold open the oil return line so that cold refrigerant can move to the crankcase and refrigerate the compressor.

This situation, if it develops, can cause a vicious cycle that gets worse the longer it exists, and to remedy it, Mr. Kellie recommended wrapping old rags or any kind of insulation around the outside of the separator. This insulation should be tightly taped and given a coat of paint to prevent its absorbing moisture, he said. The insulation will serve to lessen the temperature drop in the separator.

He noted that a leaky float valve in the oil separator will cause a rise in crankcase temperature and will bring on all the troubles normally resulting therefrom.

In cases where temperatures at the compressor are high and the velocities of the refrigerant are such that oil remains in a vaporized state and will not separate out under normal conditions, the separator should be moved as far as possible from the compressor, he expained.

He recommended placing the separator about 10 to 20 ft. from the compressor and increasing the size of the discharge line to the separator. This gives the two vapors time to separate, he said.

2,500,000 More Homes Seen Burning Oil by 1950

ATLANTIC CITY—Approximately 3,000,000 American homes were using oil heat at the end of 1946 and, by the close of 1950, about 2,500,000 more will be using some form of oil burners.

So W. A. Matheson, president of the Oil Heat Institute, told the Institute at its 24th annual convention here recently.

Mr. Matheson, who is also executive vice president of the Eureka Williams Corp., also declared that supply will catch up with demand in the oil heat industry within 90 days. He estimated that more than 750,000 oil burners will be built in 1947.

Believing that the future market for oil burners lies in towns of under 50,000 population, Mr. Matheson told Institute members that the industry expects to double its present roster of 12,000 dealers and will concentrate on placing them in smaller communities.

In most cases, this will mean starting them from scratch, he said.

He further declared that the industry believes that 1947 production will not only fulfill domestic requirements but will go a long way to meeting foreign demand.

Evaporators and More Evaporators

Pictured coming off an assembly line at the Refrigeration Engineering, Inc. plant at Los Angeles are the firm's patented water defrost coils. Deliveries are expected to increase sharply within the next few months.

Refrigeration Engineering Output Stepped Up 35%

LOS ANGELES — Refrigeration Engineering, Inc. here, manufacturer of refrigeration evaporators, reports that overall production has been stepped up a little more than 35% over last year's output.

While these gains have grown out of the additional manufacturing facilities completed by Refrigeration Engineering last fall, "they are by no means indicative of what the picture for the entire year will show," declared Hy Jarvis, vice president and general manager, "because more assembly lines are being installed and many production shortcuts are being put into effect as rapidly as possible."

The firm manufactures more than 15 different styles of blower coils.

Latest Tenney Catalog Includes Price Revisions

NEWARK, N. J.—A new edition of the cooling units catalog put out by Tenney Engineering, Inc. here, is now being issued to the company's distributors and customers. The 20 page book also contains price revisions.

Known as Catalog CD 48, it describes and illustrates Tenney unit coolers, Kwik-Freeze ice makers, Tenney coil and pan combinations, Tenney wall mounted panel units, bare tube coils, Tenney bunker type coils, coils for display cases, gravity coils, beer cooling coils, and others.

It also contains a chart for selecting the size of finned coils for a specific cooling load and a simplified method for determining the price of such a coil.

Mueller Brass Co. Reports $721,213 Profit In Quarter

PORT HURON, Mich. — A net profit of $721,213, or $1.36 earned per share, was reported for the quarter ending Feb. 28, 1947, by the Mueller Brass Co. here.

This profit is after charges and federal taxes and after deducting $350,000 reserve for possible future decline in inventory prices, according to F. L. Riggin, Sr., president.

The net profit for this quarter compared with a $251,014 profit for the same period in 1946.

MOTORS WANTED
Standard Makes Only
LARGE QUANTITIES PREFERRED
¼ to 1 hp., 1725 rpm, single phase, 50 or 60 cycle
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WRITE FOR CATALOG "AC"

Featured In the Postwar Hotpoint Range Line

(At left) Illustrating a few of the 12 new features found in the new "postwar" line of Hotpoint ranges, a housewife sets the oven timer to turn on and off automatically cooking a dinner while she's away. (At right) A model demonstrates how the six-quart thrift cooker is first removed and stored elsewhere and then the heating element is raised to become a fourth surface unit.

* * *

Marketing Talks--

(Concluded from Page 1, Column 4)

Our Public Relations Program (an illustrated presentation) — Theodore Sills, Sills, Inc.

Progress Report of Fifth All-Industry Refrigeration & Air Conditioning Exposition—J. A. Strachan, The Weatherhead Co.

The Wholesaler Speaks—George J. Roche, Roche & Hull, Inc., Baltimore.

Wholesaler Relations—C. A. MacArthur, chairman, wholesaler relations committee of REMA, The Bush Mfg. Co.

12:30 p.m. Luncheon—South Room.

2 p.m. REMA Membership meeting—Ballroom.

Meeting called to order—H. F. Spoehrer.

Theme:

Merchandising and Marketing.

Address—"You Gotta Sell It, Too"—Vernon E. Vining, marketing consultant, Westinghouse Electric Corp., Mansfield, Ohio.

Address—"How to Plan Sales Meetings"—W. W. Kemphert, Worthington Pump & Machinery Corp., Harrison, N. J.

Paper—"Why I Am Interested In Export"—W. J. Stelpflug, Hussmann-Ligonier Co., St. Louis.

Panel discussion period. (During this period, the above speakers will conduct an open panel session and answer questions on their respective subjects.)

Announcement of the election of 1947-48 officers of REMA.

Remarks from president-elect.

Adjournment.

5 p.m. to 6:30 p.m. Cocktails and Music (Dorothy Olson—pianist). West Lounge.

6:30 p.m. Annual banquet and entertainment (Vincent Gottschalk, "The Mental Wizard"). Ballroom.

Hotpoint Showing--

(Concluded from Page 1, Column 5)

tric timing clock—a new automatic reset with 3 in. dial—which turns the oven on and off automatically, and an electric "time-measure" which buzzes when surface cooking is completed.

Provided as standard equipment with the deluxe model are:

A cast aluminum "grill or grid" for surface cooking or for use as a small broiler.

A six-quart thrift cooker that can be stored in the storage drawer when the deepwell heating unit is being used as a fourth surface unit.

A 4½ quart pressure cooker.

A completely porcelain covered smokeless broiler.

An enclosed fluorescent light extending entirely across the backsplasher.

Mr. Rees said the ranges are now being shipped to distributors for delivery to dealers.

Electric Water Heaters Utilize Calrod Units

CHICAGO — Use of the external Calrod unit as a heating element and standardization in tank sizes are features of the new 1947 Hotpoint automatic electric water heater line, the company has announced here.

In the new heaters, Calrod units circle the galvanized steel or Monel water tank near the top and bottom and are held in direct contact with the tank under 200 lbs. pressure by a tension spring.

The new Hotpoint heater tanks will be 16 in. in diameter in the 15, 30, and 40 gal. sizes, and 20 in. in diameter in the larger models, according to the company.

Frigidaire Commercial--

(Concluded from Page 1, Column 3)

emphasized in his anouncement.

He pointed out that the initial presentation will be made to district managers, commercial sales, sales promotion and service managers; sales and service engineers, and commercial district representatives. Other new commercial products will be discussed along with sales, marketing, advertising, and service plans.

"Three-day meetings will be conducted by separate factory groups in nine principal cities throughout the country," Mr. Switzer explained. Mr. Switzer and A. C. Freimann, assistant commercial sales manager will head the two factory panels.

Philco Volume--

(Concluded from Page 1, Column 5)

plant in Philadelphia came off the line in March, 1947.

"This plant is a completely self-contained unit and will produce practically all the major components that go into refrigerators and freezers. With these additional facilities, a refrigerator-freezer volume more than four times that of 1941 is now possible."

The report pointed out that sales of refrigerators, home freezers, and air conditioning units during 1946 amounted to 25% of the firm's total business, a very pronounced gain.

Radio receiving sets accounted for 56% of the company's total; storage and dry batteries, parts, tubes, accessories, and miscellaneous products, 13%; and industrial and government business, 6%, the report said.

In a summary of operations, the report asserted that, despite an operating loss during the first nine months, Philco Corp. had a net income for 1946 of $3,107,480, or $2.13 per common share.

This figure was arrived at after preferred dividends, all federal and state income taxes, and adjustment of reserves were deducted, but it included a non-recurring capital gain of $600,800 after taxes, according to the report.

Earnings in 1945 totaled $2,377,239 or $1.73 per common share, which represented the sole capitalization at that time, it said.

Output of Philco Corp. in the fourth quarter of 1946 surpassed the peak wartime rate, the report stated. As a result, total sales for the year 1946 amounted to $121,596,622 as compared with $119,129,378 in 1945, and $77,073,636 in 1941.

"In 1946, Philco maintained its record as the largest producer of radio receiving sets in every year of civilian production since 1930," the report averred.

"In addition to leading the industry in unit output, Philco manufactured and sold more radio-phonographs than any other company."

As for the future, Messrs. Ballantyne and Gubb stated, "Our plants are operating at a high level and orders for Philco products from distributors and dealers continue to increase, even though fears of a recession in general business have been expressed in some quarters."

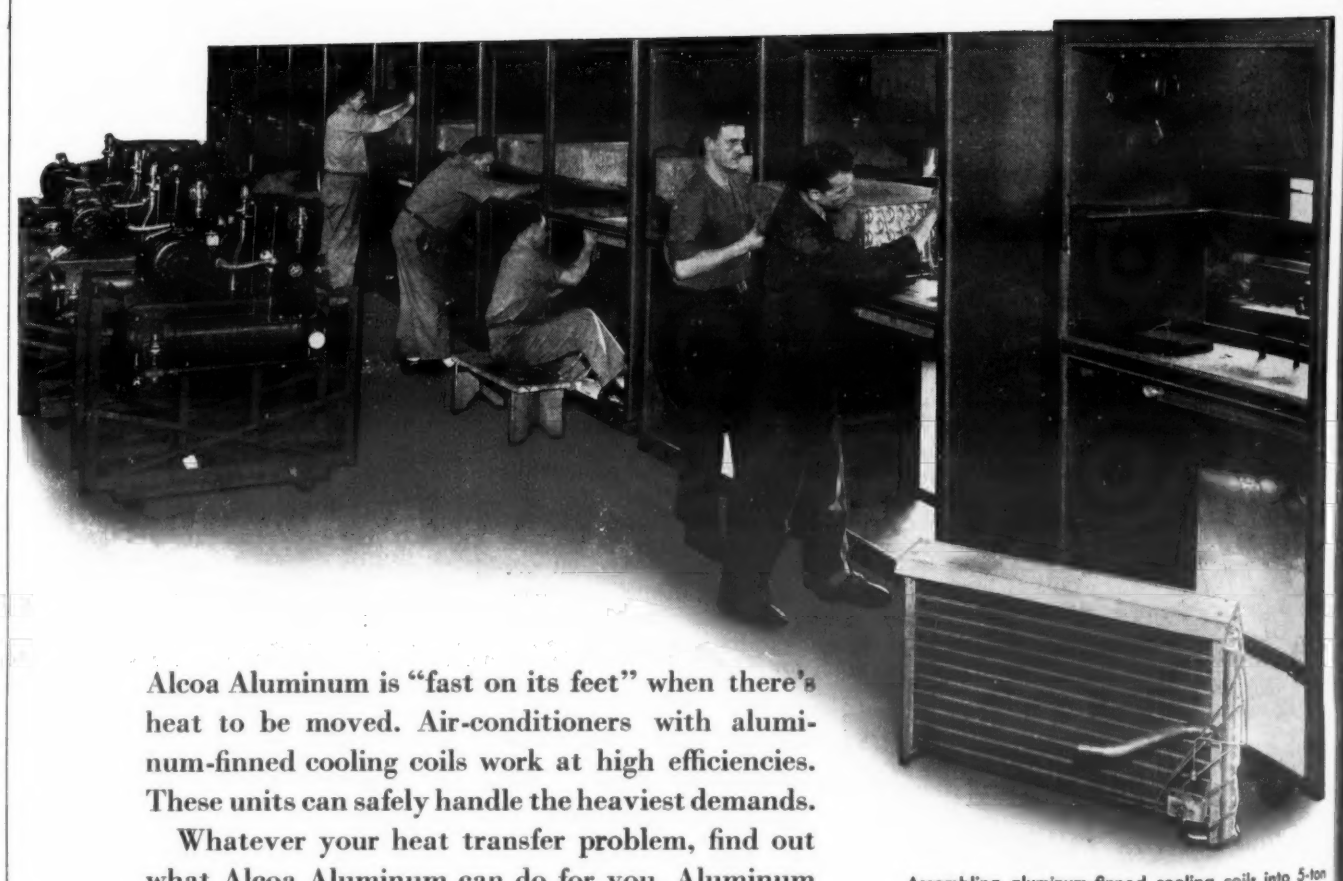
G-E Names 3 To Head New A.C. Departments

BLOOMFIELD, N. J. — Appointment of three men to head divisions of the newly organized Commercial Engineering Divisions of General Electric's Air Conditioning Department, has been announced by G. R. Prout, vice president and general manager.

W. B. Miller has become engineer of the Field Engineering Division; C. W. Brown, engineer of the Application Engineering Division; C. E. Ehrenhardt, engineer of the Engineering Commercial Division; and R. W. Olsen, supervisor, field section, of the Field Engineering Division.

These appointees will be under the direction of F. H. Faust, manager of the Commercial Engineering Divisions.

Aluminum fins on their coils help crowd more cooling into a "package"



Alcoa Aluminum is "fast on its feet" when there's heat to be moved. Air-conditioners with aluminum-finned cooling coils work at high efficiencies. These units can safely handle the heaviest demands.

Whatever your heat transfer problem, find out what Alcoa Aluminum can do for you. Aluminum is easy to fabricate and is an efficient worker on any cooling or heating operation.

Alcoa Aluminum is made in every commercial form, and can be worked by standard fabricating methods and joined by welding or brazing. Call the nearby Alcoa office, or write ALUMINUM COMPANY OF AMERICA, 1975 Gulf Building, Pittsburgh 19, Pennsylvania.

Assembling aluminum-finned cooling coils into 5-ton air-conditioners. These units, produced by Curtis Manufacturing Company of St. Louis, are complete packages in themselves. Set them in place, connect water and power, and they're ready for work.

MORE people want MORE aluminum for MORE uses than ever

ALCOA FIRST IN ALUMINUM

IN EVERY COMMERCIAL FORM

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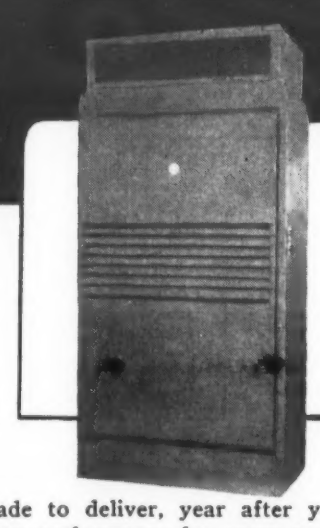
A RESPECTED NAME IN AIR CONDITIONING



The oversized 3, 5 and 7-ton TYPHOON units are the result of over 30 years experience in building air conditioning equipment capable of delivering full capacity under most trying conditions.

Every TYPHOON unit is made to deliver, year after year, 12,000 BTU's of air conditioning performance for every ton of rating. The big cooling coil, the oversized condenser and other oversized parts are your assurance of customer satisfaction with a minimum of servicing.

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